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American Antiquity

A Quarterly Review of American Archaeology

Contents

Early Horizons in the Southeast. WILLIAM G. HAAG 209

The Taxonomic Position of Stalling's Island, Georgia. CHARLES H. FAIRBANKS 223

A Chronological Outline for the Northwest Florida Coast. GORDON R. WILLEY and R. B. WOODBURY 232

The Natchezan Culture Type. GEORGE I. QUIMBY, JR. 255

Pottery from the Ozark Bluff Shelters. S. C. DELLINGER and S. D. DICKINSON 276

An Oneota Site in Missouri. BREWTON BERRY and CARL CHAPMAN 290

Types of Artificial Cranial Deformation in the Eastern United States. GEORG K. NEUMANN 306

FACTS AND COMMENTS . . . . . *See Cover III*

BOOK REVIEWS . . . . . *See Cover III*

AMERICAN ANTIQUITY IS INDEXED IN THE INTERNATIONAL INDEX

Published by the

Society for American Archaeology

Vol. VII *January, 1942* No. 3

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AMERICAN ANTIQUITY is published at 450–454 Ahnaip Street, Menasha, Wisconsin, quarterly in the months of January, April, July and October by the Society for American Archaeology. Subscription only by membership in the Society for American Archaeology (annual dues $3.00); includes the quarterly issues of AMERICAN ANTIQUITY and other releases as issued.

Entered as second-class matter July 22, 1935, at the post office at Menasha, Wisconsin, under the Act of March 3, 1879.

Contributions and publications for review should be sent to the Editor, Douglas S. Byers.

Subscriptions and orders for back numbers should be addressed to the Secretary-Treasurer, Thorne Deuel.

AMERICAN ANTIQUITY

VOL. VII JANUARY, 1942 No. 3

EARLY HORIZONS IN THE SOUTHEAST

WILLIAM G. HAAG

THE Southeastern archaeological area has never been clearly defined but has tacitly been considered that part of North America south of the Ohio River and east of the Mississippi. By some archaeologists it has been thought a rather homogeneous culture area, but no other portion of the continent presents a more varied content. With several types of topography represented, it is logical that many kinds of aboriginal sites are to be found within its scope; the number of seemingly unrelated tribes that claimed this area as their home connotes a varied past. In early historic times it was one of the first sections of the continent to be explored by Europeans. In recent years intensive archaeological investigations have thrown new light on the history of the region and its inhabitants. Tremendous shell midden deposits along river and creek courses and on the Atlantic and Gulf coasts, rock shelters and caves showing occupation, and a few inland sites of demonstrable antiquity all indicate an earlier population entirely different from that encountered by the first visitors from Europe. The thesis of this paper is that there have been several underlying cultural strata or aboriginal economies within this area which were the crude beginnings of the later groups or were submerged by later invasions of more advanced peoples.

SHELL HEAPS

These sites are accretions of shells found by recent excavation to attain a vertical thickness of horizontal strata as great as eighteen feet; even greater depths have been reported in the literature. In most examples of such sites the lower portions of the accumulations are notably devoid of pottery, sherds usually being confined to the upper one or two feet. At each site it is apparent that the pottery was introduced by later visitors or was used by persons responsible for the growth of only the latter stages of the site.

Geographically, these sites are widespread throughout the Southeast. The northernmost sites are located on the Ohio River tributaries in western Kentucky and southern Indiana. It is on Green River, in the former state, that Indian Knoll is located, a site excavated as early as

1915,[1] yet remaining a unique find until similar sites were noted in Wheeler Basin in 1934.[2] Many other heaps are to be found in the Green River drainage area. Farther north, two shell heaps have been reported on the Indiana bank of the Ohio near Louisville, Kentucky.[3] The lower levels of these heaps produced no pottery. The sites of this northern portion are remarkably homogeneous.

Data from sites under excavation at present in the Tennessee River Valley in western Tennessee and Kentucky are as yet unpublished, but at least one site is without any evidence of pottery. They all indicate a rather close correlation with heaps to the east and south. In northern Alabama the enormous size of the sites is rivalled only by that of sites of a similar nature along the Atlantic seaboard. The second site excavated that might have been assigned to this culture complex is in Columbia County, northeastern Georgia.[4]

The extensive heaps on the shores of the Atlantic bays and estuaries "are practically continuous for many miles and reach back from the water for distances varying from a few rods to half a mile or more."[5]

At Popes Creek, Maryland, a midden pile was removed for calcining the shell for fertilizer. Five hundred thousand cubic feet of shells were taken from the heap for this purpose. This site showed a maximum depth of twenty feet and an average of six feet.[6] In Florida, heaps were excavated to furnish lime for the streets of Palatka.[7] These sites, along St. John's River, varied in depth from a few feet to as much as twenty-seven feet at the Mt. Taylor heap, according to the investigator.[8] With rare exceptions, these sites show the major portion of the accumulation to be barren of potsherds. Where sherds are present, they are often found intruded into the top of the shell heaps in burials which are accompanied by pottery vessels. The burial furniture vessels are then similar to the potsherds; or the sherds are so superficial in their distribution as to preclude all possibility of their having been used by any other than later visitors to the site after its abandonment by its builders. In some instances, certain types of potsherds occur in such numbers in the last stages of the accumulation as to patently demonstrate their inclusion with this last stage of the heap's accretion. In Florida, Moore found ornamented pottery from top to bottom of a heap sixteen feet deep.[9] In other sites, only sandstone and steatite vessels are present.[10] In Pickwick Basin there are stratified sites with ceramic wares overlying sandstone vessels which, in turn, mark the

[1] Moore, 1916. Bibliography, see pp. 311–318 of this journal.
[2] Webb, 1939. [3] Guernsey, 1937, pp. 100, 218 [4] Claflin, 1931.
[5] Holmes, 1907, p. 113. [6] *Ibid.*, p. 114. [7] Moore, 1893, p. 8.
[8] *Ibid.*, p. 13. [9] *Ibid.*, p. 24. [10] Webb and Wilder, N.D.

lowest level of occurrence of pots in a site with many more feet of non-pottery bearing strata.[11] And finally, there are sites that contain no potsherds or stone vessels at all. Moore, excavating in the St. John's River area reports:

> Many and considerable excavations made in every part with an adequate force of men have failed to reveal a fragment of pottery beneath the surface loam.[12]

The site referred to was the Mt. Taylor heap, an accumulation with a total depth of twenty-seven feet. Some of the recently excavated heaps in Green River Valley in Kentucky have revealed no potsherds, although in each instance the entire midden has been removed and examined. In the West Indies, shell heaps are widely scattered. Their status is summarized by Gower:

> Shell heaps are to be found throughout the West Indies. This was to be expected, since the population of islands where game of any kind was scanty would naturally turn to the sea for much of its food. Similar mounds are found along the Gulf Coast of North America and the northern coast of South America. The culture most closely connected with these great refuse heaps seems to have been quite primitive. Both in the islands and on the Florida coast are found shell mounds without pottery or with very crude ware only. In other instances, the evidences will point to occupation by people of a higher culture. Certain shell heaps bear indications of successive occupation by different peoples. In such cases, the crude pottery and the extensive use of shell occur in the lowest levels.[13]

It thus appears that in the Southeast there are many sites, casually referred to as "shell heaps," that are marked by an extensive accumulation of their bulk without pottery. This fact gives rise to many problems, not the least of which is their age and classification.

An examination of the material culture content of the non-pottery horizons shows a significant percentage of correlation. Certainly the projectile points are not all chipped to exactly the same shape and size, the bone work assemblage is not identical, nor are the modes of burial duplicated from site to site, but the cultural level or aboriginal economy as interpreted from the artifacts and associations with burials in the sites clearly indicates a marked accordancy of advancement along common lines of development. The flint work is rather crude, with most of the projectile points belonging to a long, straight-stemmed, roughly flaked variety. Differences are to be noted, but seem minor in importance. In the northernmost sites, smaller, notched points are more frequent. Small thumb-nail, end, and side scrapers, occurring in great numbers in Kentucky heaps, are literally absent in Alabama sites. These differences are natural, localized developments that probably had their origins in or near the places of greatest concentration.

[11] Webb and DeJarnette, N.D.

[12] Moore, 1894*a*, p. 24. [13] Gower, 1927, p. 13.

Bar gorgets of the flat, thin, perforated forms which are found in counterpart in many Woodland sites are frequently found in the southern heaps. In the Kentucky shell heaps a profusion of banner-stones or atlatl weights[14] has developed, with modifications from sub-rectangular bars to boat-stones. This development has centered about the use of the atlatl, and the long, crude, projectile points would be ideally adapted to atlatl dart points. There are many evidences of the use of the atlatl in Alabama heaps but there is not the variety of weights. Stone axes are always fully grooved (not a single occurrence of the three-quarter grooved type is known to the author) and vary in size from three inches long to over one foot, the latter weighing several pounds. Stone mortars are infrequent but pestles are abundant in most sites. Small "cupstones" or "nutstones" are found infrequently. Since the pestles occur in such variety and number it is concluded that much of the grinding was done in wooden mortars.

Many other items in the artifact list could be mentioned, but for this discussion it is sufficient to note that a well developed bone industry is found, with many types of awls, projectile points, flakers, fishhooks, atlatl hooks, drifts, beads, pins, needles, and so forth. Shell artifacts include beads of many varieties, especially vertically and obliquely cut *Anculosa* shells, atlatl weights, marine conch sections and pendants.

In the many thousands of cubic feet of shell midden that have been excavated in the Southeast a house site has never been delineated; from the presence of scattered lenses of clay with hearth sites marked by a few post molds, it may be inferred that the people did not build very substantial dwellings. That the shell heaps were not the actual dwelling sites can not be conclusively disproved, but from the presence of many fireplaces and hearths, the great quantities of fire-cracked rocks, the shells with complete admixture of broken artifacts, refuse, and burials, and from the absence of any other sites in the vicinity that might be demonstrated to be the villages of these people, it must be concluded that these were the actual locales for year-round living.

The topographic position of the sites is never propitious for the preservation of organic material, and few specimens of textile or related substances have been found. In an Alabama heap and at Indian Knoll, there have been found, in situ, single specimens of woven breech cloth fragments, apparently made from coarse grasses. Further, the position of great numbers of *Anculosa* beads, placed in such an orderly manner as to suggest their having been sewed onto a jacket or coat with sleeves

[14] Webb and Haag, 1939, p. 50.

indicates that upper garments were worn by some individuals, in death certainly, if not in life. Of course, the latter is quite probable.

An examination of the animal bone content of these heaps reveals a remarkable similarity throughout the entire southeastern area. There are exceptions, such as alligator teeth occurring in Guntersville Basin. The climate was probably little different from that which obtains today. Further, with few exceptions also, faunal remains from the heaps indicate little difference between faunal assemblages of the time of early occupation and those of the historic period of 1750–1800. An interesting feature is the total absence of the bones of bison from the heaps throughout the area. Perhaps it is not wholly relevant here, but it has been noted by the author that there is not a single occurrence of a positively identified bison bone in an archaeological site east of the Mississippi River. This is as Allen indicated as early as 1876.[15]

On all sites the bones of deer are most common, an estimated 75 per cent of all bones being of the Virginia deer, *Odocoileus virginianus*. Most of the bone artifacts are fashioned from the bones of this animal and only rarely are Wapiti bones used or found in the refuse, even in the northernmost sites, where that animal is more likely to have ranged. Many small mammals and birds are represented in the faunal assemblage, and fish and turtle remains are common. Individual dog bones are infrequent as scattered finds in these heaps but dog burials with humans are often to be found. The heaps in the southern part of the area are larger and contain a greater percentage of shells. It may be argued that this indicates a comparative scarcity of mussels in northern localities, causing a rise in other gathering activities.

Skarland has demonstrated, from one site in Kentucky, that the peoples were of medium stature and rather spare build.[16] Heads were long and relatively high, with a short face and medium wide nose. The orbits were low and square. This agrees with Neumann's general statement of the Sylvid race, to which group belong the early shell midden builders of the Southeast.[17] The fact that these aborigines were long-heads gives added weight to the claim of some antiquity or priority for the dolichocephals whether in central or marginal North America.

Attempts have been made to classify the various shell heaps in Alabama[18] and those in Kentucky.[19] Nevertheless, it is, perhaps, too early to make these any other than attempts. After many such sites are statistically compared and it becomes apparent on such a basis that the

[15] Allen, 1876. [16] Skarland, 1939, p. 47.
[17] Neumann, Georg, 1940. Personal communication.
[18] Webb and DeJarnette, N. D. [19] Webb and Haag, 1940, p. 109.

sites do fall into related groups, then, and then only, will we be in a position to accurately define the focal, aspectal, and phasal traits. The designation of traits of these various orders, i.e., focus, aspect, and phase, are not to be matters of judgement but rather naturally manifest, statistically substantiated, cultural items. This position or state of knowledge is probably a good many years in the future. Nor are we really prepared to assign this group of related materials to a pattern, although the author and W. S. Webb "hesitatingly" did so in 1940.[20] That designation, the Archaic, may prove to be correct.

The content of the shell heaps shows the people to be medium statured dolichocephals who were widespread throughout the whole of the Southeast from the Ohio River to the West Indies. Their abodes probably were rude arbors. The material culture is meagre and crude, with the predominant projectile point a long, rough, stemmed type. The use of the atlatl is indicated, with the bow and arrow probably present in the later stages. The domesticated dog was present but no evidence has been obtained that dogs were eaten. Hence, we may consider the people responsible for these great shell heaps as hunter-fisher-gatherers with major emphasis on the first and with many minor variations in these activities throughout the area.

ROCK SHELTERS

Aboriginal habitation sites characterized by overhanging cliffs forming a shelter have been excavated in great numbers in the Southeast but no adequate study has been made that presents a comprehensive analysis of their contents. The author has been brought to the conclusion that rock shelters do not possess any distinctive remains that are uniform throughout the area. Common in all the Appalachian Plateau area, these sites show a preponderance of characters, based on materials that are preserved because of the nature of the shelter; fine textiles, moccasins, gourd cups, cradle boards, and arrow and dart fore-shafts are preserved because the dry ash-bearing layers, characteristic of shelters, prevent decay of wooden specimens or plant fibrous material.

In Hooton Hollow, a shelter excavated by the University of Kentucky student field party in 1940, textile and wood artifacts were confined to the upper foot of the site. Beneath this one-foot layer were five feet of strata bearing artifacts of flint and bone that were typologically similar in content to artifacts in the upper foot. Textiles and wooden articles were absent because capillary action had drawn water from lower levels, making the ground quite damp with the resultant

[20] *Ibid.*

destruction of plant materials. The artifacts that seem to be so characteristic of shelters are not preserved in the open sites exposed to weather and meteoric waters, but were probably just as much a part of aboriginal culture content.

Within the last three years, five shelters have been excavated in Kentucky. The information gained from these has been added to that secured by a re-examination of formerly excavated sites. It has been found that the cultures represented in the shelters are always like the cultures represented in that area as a whole. For example, two shelters near the Read Shell Heap in Butler County were undoubted shell heap components; a shelter in Menifee County (Hooton Hollow) showed characteristic Adena traits, including pottery fragments on the surface. A cremation, with many artifacts of undoubted Adena types was found in the Dillard Stamper shelter in eastern Kentucky.[21] A shelter in Greenup County, near the Ohio River and only a few miles removed from a great center of Fort Ancient occupation, is assignable to that aspect.

In the West Indies, Gower[22] shows that the cave-dwelling Ciboney were culturally the same as the builders of the shell heaps. Further:

> However, the Ciboney were not the only ones to use the caves. They were used for burial and religious purposes by the agricultural peoples of both the Great and Lesser Antilles. Consequently, caves are found in which no evidence of the earlier culture is obtained, the artifacts all being of recognized Tainan types.

Although Harrington described the Ozark Bluff-dwellers as a distinct cultural group, he recognized that they did not all live in caves.[23] Three sites on river banks in the vicinity of his study had the typical stone artifact assemblage. And even though a "top-layer" culture is recognized overlying the Ozark Bluff-dweller culture in some caves, sites of this later culture were reported as being found along river banks near Noel, Missouri.[24] From the description of artifacts and pottery, Griffin has recently suggested that this material will probably be classified in the Oneota aspect of the upper Mississippi phase.[25] Hence, it seems that later migrants used these shelters for temporary dwellings. The final conclusions as to pottery use was that this type of artifact came into the Ozark Bluff-dwellers' culture in the last stages of growth or accumulation. It was

> . . . determined, that it was sand or crushed stone-tempered, or more rarely, shell-tempered, undecorated, usually dark in color, frequently quite thick and hard, and that the vessels were frequently flat bottomed; in fact, the ware suggests somewhat the coarser variety of pottery seen in the Caddo region of southwestern Arkansas but lacks its decoration.[26]

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[21] Webb and Funkhouser, 1930, p. 273. [22] Gower, 1927, p. 15.
[23] Harrington, M. R., 1924, p. 16. [24] *Ibid.*, p. 20.
[25] Griffin, 1937*a*, p. 297. [26] Harrington, M. R., 1924, p. 12.

It is notable that the two shelters of shell heap components in Butler County, Kentucky, had potsherds on the surface, yet no sherds were found on the nearby Read Shell Heap. In Ocmulgee Basin, a shelter called Shell Rock Cave,[27] showed an archaeological content similar to that of some of the mounds in the area. It apparently was occupied during the Swift Creek period of development in that locality.

It is demonstrable that some of the shelters in the Southeast have, at the bottom of their structure, strata which contain no pottery. Hooton Hollow had a total artifact bearing depth of five feet, yet no sherds were found below the one and one-half foot level. Such sherds as occurred were either Woodland or Adena types. The artifact content of all documented shelters is so meagre that no valid associations of flint types, bone artifact types and these top sherds can be made. Further, the artifacts in the lower non-pottery strata are not always to be differentiated from those in the top layers. In keeping with the theory that the shelters were occupied by all indigenes, many of the more remote shelters would have been visited and used temporarily by shell heap dwellers who had no pottery. Atlatl weights and dart fore-shafts have been found in Kentucky shelters, a further clue that the shelters were used by early inhabitants.

The archaeological material illustrated by Nelson[28] from the vestibule of Mammoth Cave appears to resemble closely the shell heap material of near-by Green River. Nelson recognized that this material was older than deposits in rock shelters and caves which latter is "identical in nature with remains reported from the stone graves and the earth mounds of the entire east-central portion of the Mississippi Basin."[29]

In near-by Metcalfe County, in 1939, a group of field party supervisors of the University of Kentucky-WPA Archaeological Survey excavated a cave site that disclosed a Copena component. In Guntersville Basin, a cave entrance partially examined by Cyrus Thomas[30] in the last century was completely excavated in 1939. A huge pile of cremated remains with typical Copena artifacts indicated that the same mound building, village inhabiting peoples had utililized this cave for burial purposes.[31] Doubtless many similar occurrences of the inhabitation of shelters by autochthonous peoples could be cited, but it seems apparent that, like the shell heaps, the rock shelters were first used by non-pottery peoples and then as often used by later agricultural groups.

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[27] Kelly, 1938, p. 32.
[28] Nelson, 1917, pp. 59, 60.
[29] *Ibid.*, p. 70.
[30] Thomas, 1894, p. 285.
[31] Webb and Wilder, N.D.

EASTERN FOLSOM-YUMA

In recent years, a few sites have come to light in the Southeast the apparent aspect of which is suggestive of the early High Plains material. It has long been recognized that Folsom and Yuma artifacts are widespread throughout eastern North America but there are very few documented occurrences. Thus, it is with special interest that each new find in situ is examined.

The distribution of Folsom and Yuma artifacts has been outlined by several workers in that field and all generally agree as to their concentrations, but conclusions are varied as to uniformity of type throughout the continent. Although it has been agreed that all points of the fluted type are distinctly Folsom[32] and all with oblique or characteristic "Yuma" chipping should be called Yuma,[33] it is recognized, nevertheless, that typology does not constitute a valid criterion for contemporaneity. In the East there have been a few recent reports of sporadic finds that are well documented. These reports seem to presage the demonstration of an early horizon in the Southeast which may be similar in typology, if not in age, to the Folsom and Yuma complex found farther west.

In central Georgia, at the Macon site, an early horizon (designated as "pre-pottery flint industry") called Early Macon Plateau was described a short time ago.[34] Although the evidence as presented is meagre, it seemed conclusive that there existed a flint-working aboriginal group before the advent of any of the later pottery-using peoples. No continuous development into the pottery-using layers was noted here, but rather a marked break in typology of flints, degree of patination, and mode of occurrence was seen. A fine example of an eastern Folsom point was found in this lower layer.[35] The artifacts include drills, scrapers, knives and perforators that "closely resemble western prototypes."

One of the typical artifacts was a "class of broad, snub-nosed, plano-convex scrapers with a shelving haft."[36] It is not apparent from this limited description exactly what the shape and size might be. However, the description could well fit a large number of hafted scrapers found at the Parrish site in Hopkins County, western Kentucky.

The Parrish site was excavated in the spring of 1940 and soon manifested itself as unusual, not falling into any of the known archaeological

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[32] Roberts, 1940, p. 56; Cotter, 1937, p. 28.
[33] Roberts, 1940, p. 62; Cotter, 1937, p. 28.
[34] Kelly, 1938, p. 2. [35] *Ibid.*, Fig. 5. [36] *Ibid.*, p. 7.

categories for the area. Attention was originally focused on this site when three Folsom points were reported as surface finds from it. One of these points was sent to the Smithsonian Institution and later was used in an illustration of eastern Folsom types in a publication on the Folsom problem.[37] This point has been examined by the writer and it can be seen that the basal grinding along the lateral margin, thought to be a good Folsom trait, is present in this instance as well as on two of three recently found specimens.[38] These latter specimens are represented by two basal halves and one complete artifact. The complete point does not have a channel or fluting down the entire side, but is thinned at the base. It is similar in shape and flaking to the eastern specimen illustrated by Fowke.[39] The entire assemblage has been examined by competent observers and pronounced similar in many respects to western Folsom-Yuma.[40] Three Yuma points of "one characteristic type" were also illustrated; blades from the Parrish site exhibit what appear to be identical chipping and shape. Perhaps the most common artifact at the Parrish site was a small snub-nosed scraper. This was found in a variety of forms, all of which readily duplicate those found at the Lindenmeier site.[41] However, they are also much like those found in the shell heaps farther to the east in Kentucky. The large hafted scrapers, mentioned above, are not found in shell heaps. Side scrapers are common also and are like those found at Macon[42] and on western sites. One type of scraper frequently recovered from the Parrish site is closely related to the form from Lindenmeier illustrated in one of the reports on that site.[43] A few specimens of small gravers and several atlatl weights or bannerstones were scattered throughout the midden at the former locality. Bone work from the Parrish site is rare and is represented chiefly by several large chisel-like tools made from deer antler and a few antler sections. Six antler and ulna flint-flakers and an awl made from a deer cannon bone completed the assemblage. There was not a fragment of pottery found. Although over 135 burials were found, the bones were in a very poor stage of preservation and few possibilities for a physical study are available. As yet, this study has not been made.

The evidence gleaned from the Parrish and the Early Macon Plateau suggests an early cultural horizon comparable in many ways to the Folsom-Yuma horizon in the west. No doubt, many other sites will be

[37] Roberts, 1939, Pl. 15, upper right corner.

[38] Cotter, 1937, p. 29. [39] Fowke, 1896, p. 147, fig. 189.

[40] J. D. Figgins, John L. Cotter, James C. Greenacre and George Jackson, Field Supervisor in charge of excavating the Parrish site. [41] Roberts, 1935, Pls. 9, 10.

[42] Kelly, 1938, Fig. 4. [43] Roberts, 1935, Pls. 11, 12.

discovered in the Southeast in the future by the more refined techniques now in use. Until then, it remains a rather nebulous stratum. Typologically, this seems to be the oldest material in the Southeast but it cannot be demonstrated stratigraphically.

COMPARISONS AND SUMMARY

A cursory survey of the foregoing citations indicates the presence within the southeastern geographical area of at least two non-pottery horizons which within themselves show minor variations.

One of these seems to indicate inhabitants whose archaeological remains are quite reminiscent of the Folsom-Yuma artifacts of the western part of the continent. That considerable antiquity may be demonstrated for the western sites has been amply shown by both faunal associations and geologic position. Such age can not even be implied for the eastern occurrences, as there were no outwash gravels or terraces formed by melting glaciers so far south. Further, the fauna of the western plains may have been restricted from the eastern plateaus for various reasons. But the important fact is that there are very few Pleistocene sub-aerial deposits in the East to preserve any faunal remains. Hence, the absence of these chronological markers does not obviate the possibility of some antiquity for the sites.

One of the problems associated with recent Folsom-Yuma studies in the West has been that of correlating the finds with later archaeological materials. Usually, a definite hiatus is seen between earlier and overlying materials.[44] Texas has been suggested as the only area in which some evolution is vaguely discernible. At Macon, a break was thought to exist between the early flint horizon and later deposits.[45] At the Parrish site the presence of atlatl weights and snub-nosed scrapers like those found in shell heaps suggests a continuity that only more excavation and study can prove or disprove. It is realized that these are merely suggestions based on the most meager of evidence: they are to be used as a guide in future work rather than as a conclusion. Far too little is known of similar material in the Southeast to hazard any sort of far-reaching statement of relationships. Nevertheless, it is in keeping with the theories advanced by workers in the Folsom-Yuma field.[46] For the moment, the Folsom-Yuma horizon in the Southeast must be considered a little-substantiated culture level whose claim to authenticity is based on typological resemblances. Typology is, at most, a tool to be used with caution. However, the author believes that further excavations of sites comparable to the Parrish site will show a

[44] Roberts, 1940. p. 108. [45] Kelly, 1938, p. 66, Fig. 7.
[46] Roberts, *op. cit.*; Cotter, 1932, p. 35.

very early horizon nearly equal in antiquity and distribution to the Folsom-Yuma of the High Plains.

The shell heaps, on the other hand, represent much better known remains and correlations seem possible on the basis of our present knowledge. It is readily apparent that certain basic traits are common to all the shell heaps and to comparable sites throughout the entire continent, not just in the southeastern portion. As mentioned in the foregoing descriptions, the shell heap remains of the Southeast are characterized by rather long, crude, stemmed projectile points, perforated stone gorgets of various shapes, stone beads, round graves, shell pendants, and a great variety of bone work. When sites of the northeastern area, like Lamoka Lake,[47] were compared with these heaps,[48] it was found that many artifacts and features of complexes are quite similar. The diagnostic traits of the Archaic pattern, as set forth by Ritchie,[49] include most of the basic characteristics of southeastern shell heaps. In this paper, no detailed cross correlations are indicated and no attempt is made to definitely classify this non-pottery horizon of the Southeast. It is incompatible, at present, with definitions and arbitrary understandings commonly held by eastern archaeologists to properly classify in the McKern system a site which is part non-pottery in character and the remainder with pottery included. It is evident that two components may be involved, but within some of the shell heaps of the Southeast it is demonstrable that the pottery found is a trait introduced into the cultural complex without any marked revolution in the mode of life indicated. This is simply a problem of classification and not one of interpretation.

Recently, in Louisiana, sites were excavated that showed some relationship with the Stallings Island and Kentucky shell heaps. Material from the Louisiana sites has been assigned to the Tchefuncte Period and is marked by the presence of fibre tempered pottery said to be similar to the ware found in the upper levels at Stallings Island.[50] This latter typologically "approaches identity" with the St. Simons complex of fibre tempered pottery found along the Georgia coast.[51] Tchefuncte is considered the oldest stratum in the Delta region and may represent a focus of early people who were a southernmost proliferation of the shell heap migrants. The fibre tempered pottery that seems so much a part of the last stages of Stallings Island, Tchefuncte, and certain of the Pickwick Basin heaps is of a probable southeastern origin. There are such differences in this pottery ware in the three areas involved that it

[47] Ritchie, 1932. [48] Webb and Haag, 1940, p. 103.
[49] Ritchie, 1938, p. 109. [50] Ford, J. A., 1940. Personal communication.
[51] Caldwell and Waring, 1939.

seems probable that it was made in each locality of native materials. There is no evidence of trading pottery; perhaps just the concept of making pottery was spread. At present it is not possible to state from the available evidence the exact relationships of this fibre tempered horizon with later cultures. Nowhere is there a direct transition into more complex groups.

Drawing similarities between the shell heap horizon of the Southeast and Santa Barbara coast sites may seem beyond the pale of good archaeological procedure. It is, however, good practice to note that the Pacific Coast material at the Burton site,[52] at Ellis Landing Shell Heap,[53] at Emeryville,[54] and near Santa Barbara[55] shows the characteristic artifact assemblage to include mortars and pestles, tubular pipes (also found in Pickwick Basin sites in Alabama), stemmed projectile points, drills, stone beads, fishhooks, disk beads plastered on bone tubes with asphalt (recently found at Indian Knoll in Kentucky), a great variety of shell beads and pendants, bone awls, tubes, and whistles. The entire complex suggests a simple, sedentary culture, dependent on hunting, fishing, and root and berry gathering for a livelihood. This summation of basic traits, will apply just as accurately to the non-pottery shell heap horizons of the East. That there are minor variations has already been pointed out, and Lowie has contended that this theme of local diversity within a broad pattern is to be expected.[56] It is a natural consequence that these early peoples would exploit and develop to different degrees the material nearest at hand.

Synthesis in the East has been hindered by the fact that nearly all the work is based almost entirely on archaeology, with little regard for ethnological and historical implications. A great amount of ethnological work has been done in the Southeast but, until recently, little effort has been made to apply the historical method to southeastern prehistory. This field is now being carefully considered.

CONCLUSIONS

There is a tentatively established Folsom-Yuma horizon in the Southeast that includes presumably, the oldest cultural remains of the area. As work progresses, it is believed that the definition of this material will become more apparent.

Of less antiquity is the widespread, non-pottery, shell heap horizon that marks a moderately large population, pre-agricultural, and relatively simple in material culture. This group shows such striking similarities with comparable manifestations elsewhere in North America

[52] Harrington, J. P., 1928. [53] Nelson, 1910.
[54] Schenck, 1926. [55] Olson, 1930. [56] Lowie, 1940.

that it must be a portion of a once widespread, hunting-gathering folk of common ancestry. There is no evidence that the shell heap horizon of the Southeast is a derivative of the Archaic of Mexico, or of any earlier horizon of that region. It is more probable that the immigrants bearing this culture came into North America at a relatively early period, but still, long after the Folsom-Yuma peoples, spreading throughout the continents, some populating the Pacific Coast, some continuing onto the southern tip of South America, some moving across the High Plains into the Mississippi Valley, here, to move both eastward and southeastward to leave their remains wherever conditions were favorable. The length of time consumed in this migration, the time of the migration and the span of occupation can only be guessed, but it seems certain that enough time passed to bring about many changes as the groups encountered different ecological conditions. In the later stages of the life history of this culture, it is probable that it was subjected to that of various new immigrating peoples who affected the group to the extent almost of total absorption or extinction, at least in the Southeast.

From the records, it appears that few of these peoples were still living when the early explorers reached this country. Still, the shell heap horizon represents a group from which many of the later, more complex, agriculturalists could have derived some of their basic traits. In the Southeast, it is thought that certain shell heap traits are continued in the Woodland pattern.

At this time it is evident that rock shelters do not represent any uniform early occupancy but were used by both ancient and recent aborigines. The establishment of a well-ordered sequence of events in the early history of the Southeast seems probable in the not too distant future.

Museum of Anthropology
University of Kentucky
Lexington, Kentucky
December, 1940

THE TAXONOMIC POSITION OF STALLING'S ISLAND, GEORGIA[1]

CHARLES H. FAIRBANKS

STALLING'S ISLAND, located in the Savannah River eight miles above Augusta, Georgia, is the site of a large, deep shell midden. Jones[2] mentions the Stalling's Island midden, but the principal source of information has been the report of Claflin's work.[3] The present report deals with an excavation[4] intended to obtain additional information on the cultural affiliation of this material. Interest was aroused by Claflin's statement that sherds were absent from the lower levels.[5] It was hoped that some evidence of vertical change would be found and that it would be possible to demonstrate the cultural affiliations of this group. Three stratigraphic blocks were excavated, two in arbitrary six-inch levels, the third in arbitrary one-foot levels. Four exploratory trenches led to the discovery of seven human burials and a number of additional artifact types not described by Claflin. The burials were so similar to those previously described that they will not be discussed at this time.

The Stalling's Island midden is especially interesting, because it presents a picture of the widespread hunting and collecting group which inhabited the Southeast at an early date. Wyman[6] first described their shell middens and fiber tempered pottery along the St. John's River of Florida in 1875. Moore[7] excavated a number of similar sites in Florida and Georgia.[8] Holmes[9] describes the pottery of these mounds and recognizes that it is both early and radically different from the Southern Appalachian Province. Evidence from Louisiana indicates that the Tchefuncte occupation, although differing in pottery and other traits, is of essentially the same pattern.[10] The recently excavated Bilbo site near Savannah presents the material along the northeastern fringe of the area.[11]

In the Wheeler and Pickwick Basins of the Tennessee River in northern Alabama[12] a similar occupation with fiber tempered pottery

[1] Prepared with the assistance of Work Projects Administration, Official Project No. 765-34-3-1.

[2] Jones, 1873, pp. 197–200; 1861, pp. 13–22. Bibliography, see pp. 311–318 of this journal. [3] Claflin, 1931.

[4] Undertaken by the State-wide Survey, sponsored by the University of Georgia and the Society for Georgia Archaeology. WPA Official Project No. 665-34-3-1.

[5] Claflin, 1931, pp. 13–14. [6] Wyman, 1875, pp. 52–56.

[7] Moore, 1894*b*. [8] Moore, 1897.

[9] Holmes, 1894; 1903, pp. 120–122, Pl. 84, Fig. 57.

[10] Ford, Quimby, Willey and Holder, N.D. [11] Waring, N.D. [12] Webb, 1939.

has been found. The pottery is not as elaborately decorated as that from Florida, Georgia, and South Carolina, but the cultural relationship of the two cannot be doubted.

Along the Green River in Kentucky, Moore[13] excavated the Indian Knoll and several related sites. These, together with the Chiggerville,[14] Ward, and Kirkland[15] sites comprise a Kentucky variant of the shell mound pattern. Pottery is lacking in the Kentucky sites but a majority of the traits are similar to the midden occupations of Georgia, Florida, South Carolina, Alabama, and Louisiana. The same subsistence level is indicated, with a high possibility that related peoples are involved.

Space does not permit an exhaustive discussion of the Stalling's Island material. Reference to Claflin and to the following trait list will indicate the general make-up of the culture. At present, only the pottery will be described, as this seems to be the best single criterion of the aspect. Claflin[16] describes and illustrates the typical sherds but does not indicate that the ware is fiber tempered. Vesicles caused by the oxidation of vegetal fibers make up about twenty-five per cent of the volume of the sherds. The clay, in addition, contains some coarse sand. Cores are grey to black, surfaces chocolate brown to light tan, occasionally grey. Decoration is the punctates, linear punctates, and brushing described by Claflin. Two sherds were impressed with a plain twined openwork fabric. The vessel shape is a shallow bowl with rim straight or sloping slightly inward. The lip, is simple, rounded or slightly flattened. The sherds are very soft, less than 2.0 in the geological scale. At Stalling's Island the surfaces are well finished and smooth, while the sherds from coastal sites are slightly matte. No good coil fractures were seen, but it is felt that the evidence does not preclude this method of manufacture.

In general, the characteristics of the pottery are very similar to those described by Webb and Griffin[17] from the Tennessee River in northern Alabama.

Many of the Stalling's Island sherds are decorated with scratches in groups of three to five arranged in random fashion. The majority of sherds, however, are decorated with punctates or linear punctates. Random punctates are usually oval or semicircular, rarely triangular. The linear punctate decoration is effected by drawing a flat, dull-pointed tool across the clay with regular deeper punches. This produces a trough with semicircular or triangular depressions throughout its length. These lines are usually horizontal and are generally confined to

[13] Moore, 1916. [14] Webb and Haag, 1939.
[15] Webb and Haag, 1940. [16] Claflin, 1931, pp. 13–17, Pls. 11–20.
[17] Webb, 1939, pp. 158–159.

the rim area. Meanders and vertical lines occur, as well as zoned arrangements of horizontal and vertical lines contrasted with plain areas. Rarely, a cross-hatched decoration is found. Narrow and broad incised lines are also found and are often associated with linear punc-

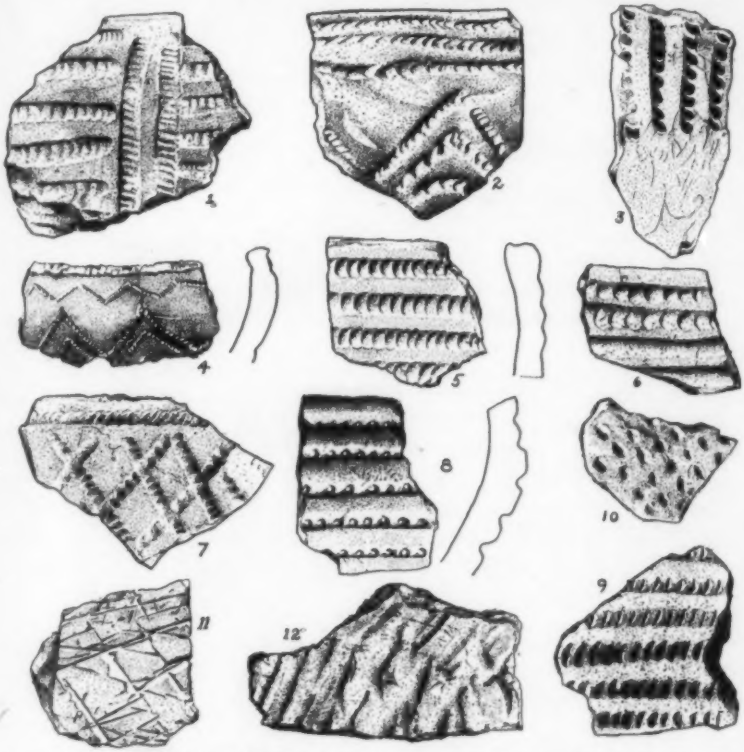
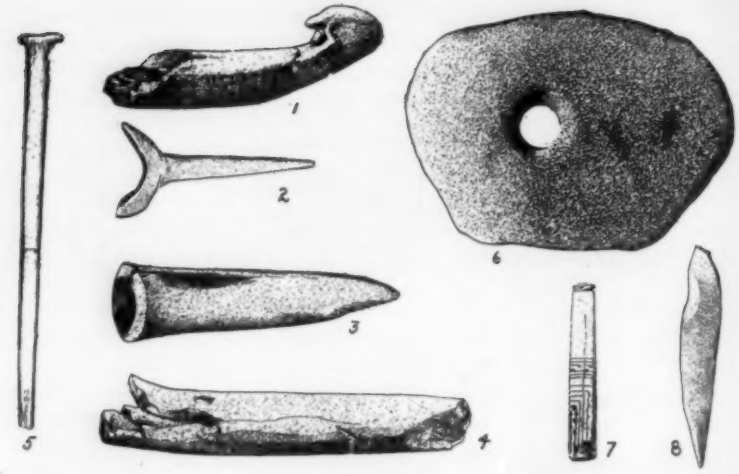


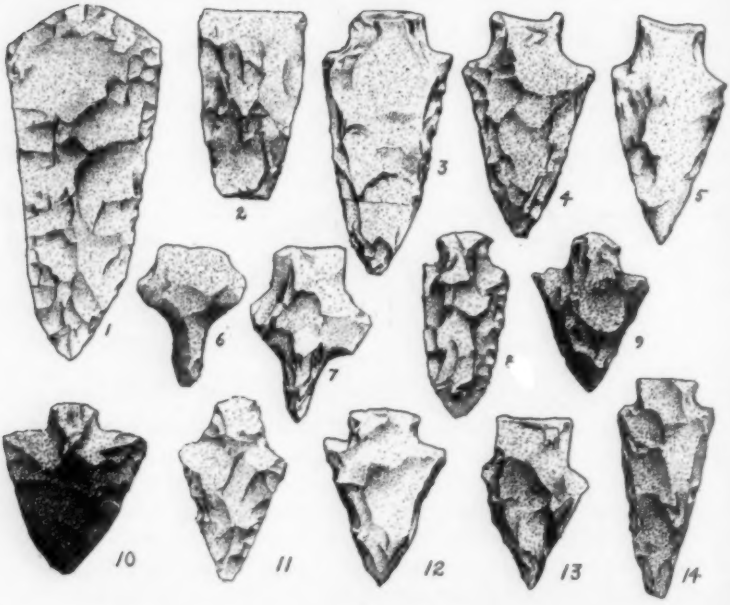
FIG. 22.—Sherds from Stalling's Island Component, Savannah River Focus.

tates. Most of the decoration seems to be confined to the upper portion of the vessels.

Most of the decorative types found at Stalling's Island are not present in the Alabama sites, but the temper and general technology of the pottery is similar. All of the pottery of this type at Stalling's Island is fiber-tempered and is the only ware found in this early aspect. Its origin is unknown but it seems to represent the first attempt at pottery manufacture over a wide area in the Southeast.



a



b

FIG. 23.—Stalling's Island Component, Savannah River Focus: *a*, above, bone and antler artifacts; *b*, below, chipped stone artifacts.

From the three stratigraphic blocks at Stalling's Island, an insufficient number of sherds was found for statistical treatment. No conclusions regarding distribution of decorative types were possible. It is certain, however, that sherds were not found below the fourth six-inch level and that they were mainly confined to the first and second six-inch levels. This gives a picture of abundant pottery in the top foot of midden, with scattered sherds as deep as two feet. Stone and bone artifacts continued to a depth of eight feet in two blocks and it is certain that pottery was introduced late in the occupation period. This same situation was found by Webb in the Pickwick and Wheeler basins of northern Alabama. It must be considered as the typical development of this early group in the Southeast.

Numerous other sherd types were found in the humus covering the Stalling's Island midden. Most of them are not from the stratigraphic blocks, but their chronological relationships are clear from work done at other points in the area. Most of the types recovered have been described in mimeographed form by the Southeastern Archaeological Conference. Deptford Check-Stamped and Deptford Linear Check-Stamped follow the fiber-tempered type. They are, in turn, followed by Wilmington Heavy Cord-Marked, which is generally similar to the northern varieties of cord-roughening. Mossy Oak Simple Stamp is also represented and probably belongs to the same general period, although slight time differences may be present. Swift Creek Complicated Stamp and Napier Complicated Stamp represent two slightly different complexes of the same approximate date, equivalent with or slightly earlier than the cord-roughened type. A few sherds of Dunlap Fabric Marked and an unnamed net-marked type probably date from the general period of Swift Creek. The net-marked type is probably slightly more recent but these two fabric-marked types seem to spread into Georgia from the Virginia coastal region, and their exact chronological position in Georgia is somewhat obscure. Lamar Bold Incised, Lamar Complicated Stamp, Lamar Plain, and a few shell-tempered cord-roughened sherds represent the widespread Lamar aspect which is generally the last prehistoric occupation of Georgia.[18] The Lamar types from Stalling's Island more closely resemble the Nacoochee Mound material than the coastal sub-type. Following Lamar, we find a few sherds of Ocmulgee Fields Plain, Ocmulgee Fields Incised, and Walnut Roughened, which represent the historic Creek occupation of this region. Thus, the Stalling's Island midden was occupied from the early settlement of the Southeast until historic times by all, or most, of the groups who inhabited Georgia.

[18] For a more extended discussion of the Lamar and Ocmulgee Fields pottery types, see Kelly, 1938.

The following trait list for Stalling's Island has been prepared from the original report[19] and the present excavations. It has been impossible to give the frequency of the various traits because they are not given in the original source. An attempt has been made to arrange the traits in a functional order.[20]

SUBSISTENCE ACTIVITY:
- Collecting Complex
  - Collecting mussels and snails
- Hunting and Fishing Complex
  - Deer, bear, raccoon, rabbit, turkey, waterfowl
  - Fish, gar, sturgeon, etc.
  - Use of atlatl
  - Use of nets, inferential; from supposed use of steatite objects as net-sinkers
  - Use of line and hook
  - Domestic dog

COMMUNITY PLAN ACTIVITY:
- Village Location and Plan Complex
  - Villages near streams
  - Shell mounds, or deep middens
  - Fire-cracked stones in debris
  - Midden pits frequent
  - Fired areas with broken stones
  - Hearth, fired clay
- Architectural Complex
  - Scattered post-molds, no evidence of structures

BURIAL ACTIVITY:
- "Round grave" burials
- Flexed burials
- Partially flexed burials
- Extended burials
- Bundle burials
- Burials in shell mound or midden
- Burials with utility artifacts
- Burials with ornaments
- Burial offerings with adults
- Burial offerings with young
- Burial of deer antlers with beads

TECHNOLOGICAL AND ARTISTIC ACTIVITY:
- Pottery Complex (no certain coil fractures)
  - Pottery in upper levels only
  - Pottery fiber tempered
  - Bowl form only
  - Rims and lips usually simple
  - Rims incurving
  - Semi-lunar punctates
  - Circular punctates
  - Linear-punctates
  - Horizontal lines of linear-punctates (Fig. 22, 5, 8, and 9)
  - Vertical lines of linear-punctates
  - Simple meander lines of linear-punctates (Fig. 22, 2 and 4)
  - Zones of punctates and of linear-punctates (Fig. 22, 1 and 3)
  - Incising, narrow line
  - Incising, broad line (Fig. 22, 6)
  - Cross-hatch of broad and narrow lines
  - Random punctates
  - Brushing (Fig. 22, 11)
  - Simple stamping (Fig. 22, 12)
  - Plain twined fabric marked (2 cases)
  - Drilled holes below lip
  - Cylindrical pottery objects
- Rough Stone Complex
  - Hammerstones, spherical
  - Mortars
  - Mullers, disk-shaped
- Chipped Stone Complex (probably only percussion chipping)
  - Drills, expanded base (Fig. 23*b*, 6)
  - Drills, cruciform (Fig. 23*b*, 7)
  - Blades, large ovate (Fig. 23*b*, 1)
  - Blades, large trianguloid (Fig. 23*b*, 2)
  - Projectile points, large assymmetric
    - Contracting stem (Fig. 23*b*, 11)
    - Straight stem (Fig. 23*b*, 3, 10, and 13)
      - Square base (Fig. 23*b*, 3, 13, and 14)
      - Concave base (Fig. 23*b*, 4 and 5)
    - Usually square shoulders (Fig. 23*b*, 3, 9, 10, and 14)
  - Use of flints and metamorphosed slates
  - Cache of flakes
- Ground Stone Complex (pecking, grinding, drilling, polishing techniques)
  - "Bannerstones," winged
  - "Bannerstones," prismatic
  - Bars, sub-rectangular
  - "Gorgets," 2-hole bar

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[19] Claflin, 1931.

[20] As suggested by Linton: "First, every trait is intimately associated with some other trait or traits to form a larger functional unit commonly known as a *trait complex*. The traits within such a complex are all more or less inter-related and inter-dependent from the point of both function and use. A number of such trait complexes are, in turn, combined to form a still larger functional unit which, since no term has so far been coined for it, we will call an *activity*" (Linton, 1936, p. 397).

- Boatstones
- Axes, fully grooved
- Axes, ¾ grooved
- "Net-sinkers," perforated steatite slab (Fig. 23*a*, 6)
- "Net-sinkers," notched steatite pebbles
- Whetstone
- Beads, disk, small
- Bone Complex (cutting, sawing, grinding, polishing, incising, painting techniques)
  - Cut antler sections
  - Forked deer ulna
  - Awls, bone splinter (Fig. 23*a*, 8)
  - Awls, small animal and bird
  - Awls, fish spine
  - Awls, cannon bone
  - Awls, ulna
  - Awls, perforated
  - Blunt bird bone tools (pottery decorator)
  - Fish hooks
  - Tubes, cylindrical
  - Bodkins, expanded base, long (Fig. 23*a*, 5)
  - Bodkins, expanded base, long, painted
  - Bodkins, expanded base, long, incised
  - Pins, short, cylindrical
  - Pins, short, cylindrical, incised (Fig. 23*a*, 7)
  - Pins, double-horned base (Fig. 23*a*, 2)
  - Spatulate forms
  - Chisels (Fig. 23*a*, 4)
  - Pendants, rectangular, 1-hole
  - Jaws, cut and incised
  - Antler drifts
  - Antler, projectile points, socketed (Fig. 23*a*, 3)
  - Antler, atlatl hooks (Fig. 23*a*, 1)
  - Antler, flakers
  - Antler handles
- Shell Complex (cutting, drilling, and grinding techniques)
  - Beads, small disk
  - Beads, small, spherical
  - Beads, tubular
  - Beads, spire-cut, olivella
  - Pendants, rectangular, 1-hole
- Fiber Complex
  - Cord, clockwise twist
  - Fabric, clockwise woven, plain twined openwork
- Design Complex
  - Horizontal and vertical parallel lines
  - Alternate decorated and plain areas
  - Cross-hatching
  - Simple meanders
  - Concentric diamonds
  - Concentric triangles
  - Parallel lines at right angles in adjacent areas
  - Rectangular fret
- Trade Activity
  - Olivella shells, Georgia Coast

Webb and Haag[21] give a trait list for the Chiggerville, Indian Knoll, Ward, and Kirkland sites in Kentucky. They compare this list with the Lamoka Lake site in New York,[22] pointing out certain trait differences between the areas and calling attention to a general similarity of cultural level. In addition to comparing the Stalling's Island material with the four Kentucky sites and Lamoka Lake I, a check was made with Ritchie's trait list for the Brewerton focus, Laurentian aspect.[23] The following results were obtained:

Ward Site and Stalling's Island	58 traits or 51.8% in common
Indian Knoll and Stalling's Island	54 traits or 48.2% in common
Chiggerville and Stalling's Island	45 traits or 40.2% in common
Lamoka Lake I and Stalling's Island	41 traits or 36.6% in common
Kirkland Site and Stalling's Island	40 traits or 35.7% in common
Brewerton Focus and Stalling's Island	37 traits or 32.7% in common
Common to Kentucky, Lamoka, Brewerton, and Stalling's Island	14 or 12.4%
Common to 4 Kentucky Sites, Lamoka Lake I, and Stalling's Island	16 or 14.3%
Common to 4 Kentucky Sites and Stalling's Island	33 or 29.5%
Common to 3 Kentucky Sites and Stalling's Island	51 or 47.3%
Common to 2 Kentucky Sites and Stalling's Island	55 or 49.2%
Common to 1 Kentucky Site and Stalling's Island	63 or 56.3%

[21] Webb and Haag, 1940. [22] Ritchie, 1932. [23] Ritchie, 1940.

Using the four-cell method[24] and the formula, $Z(a-b-c+d)/(a+b+c+d)$, the following table is derived:

	CH-1	CH-2	McL-11	1Cb-2
CH-1	1.0	.48	.42	−.53
CH-2	.48	1.0	.23	−.48
McL-11	.42	.23	1.0	−.36
1Cb-2	−.53	−.48	−.36	1.0

The Kirkland site (McL–12), Lamoka Lake I and Brewerton foci were eliminated because of the relatively low correlations obtained. The statistical approach, in this case, seems to confirm the observations made in comparing the trait inventories subjectively. On the basis of these comparisons, certain conclusions can be drawn. All the sites represent comparable economic systems, the subsistence and community plan activities being nearly identical except for increased dependence on shellfish in Kentucky and Georgia. Lamoka Lake I has a higher percentage of traits in common with Stalling's Island than does the Brewerton focus. However, the presence of winged bannerstones in Stalling's Island and Brewerton is significant. Projectile points are notched in Brewerton and stemmed in Stalling's but both types are large and relatively broad. It may be significant that small triangular projectiles are completely lacking in the shell middens. Copper was found at Indian Knoll and Brewerton, but this indicates only trade relationships with a third group. Scrapers were present in Brewerton and Kentucky but not in Stalling's. Harpoons, beaver incisor tools and possibly antler pendants seem to be peculiar to one or the other of the New York foci. The dentate stamp on Brewerton pottery suggests a parallelism with the fiber tempered type from the Wheeler Basin in northern Alabama. The significance of linked traits between the northeastern and southeastern aspects is not clear, but the writer feels that two separate traditions are represented with a consequent mingling in certain foci. It is hoped that future work will provide data for the reconstruction of the culture history of these postulated groups.

The shell mound material is easily divisible into a Green River focus and a Savannah River focus. Thus the twenty pottery traits and some of the more specialized bone items become local traits referable to the Savannah River focus. These two foci, together with an unnamed focus in northern Alabama, form what might be termed a Shell-Mound aspect. The following traits are suggested as determinates for the

[24] Kroeber, 1940, pp. 29–44.

Savannah River focus in comparison with the Green River focus: bundle burials, deer antler burial, the entire pottery complex, disk-shaped mullers, cruciform drills, boatstones, ¾ groove ax, 2-hole bar gorgets, perforated "sinkers," notched "sinkers," blunt bird bone tool, painted bone bodkins with expanded base, short incised bone pins, rectangular bone pendants, rectangular shell pendants, small spherical shell beads, cut and incised deer jaws.

The present information would indicate an early group spread along the rivers and coasts of the Southeast from Kentucky to Florida and Louisiana. An elaborate bone industry, as well as a considerable number of stone traits, is present in all of the sites. Atlatls were used, probably with the socketed antler projectile point. Fishhooks are always present; nets, as indicated by presumed sinkers, seem to be restricted to the south. Pottery was not present in the north or in the earlier levels of the south. The first pottery was fiber tempered. It seems to have developed locally as the result of the diffusion of ideas rather than actual objects. The hunting and collecting economy is similar to that represented by the Archaic and Laurentian aspects of New York State.

Ocmulgee National Monument
Macon, Georgia
March, 1941

A CHRONOLOGICAL OUTLINE FOR THE NORTHWEST FLORIDA COAST[1]

GORDON R. WILLEY and R. B. WOODBURY

THE northwestern part of Florida is a strip of land about 225 miles long, extending from Pensacola Bay to Apalachee Bay, in which are recognized two physiographic regions, "Flatwoods and Hammock Lands," along the coast, and "Southern Pine Hills," inland.[2] The coastal region, in which are located most of the sites to be considered, is quite flat and of uniformly low elevation, and includes several contrasting types of landscape. The greater part of the land is occupied by the flatwoods or open groves of longleaf and other pines interspersed with grassy meadows and the hammock lands, which support a denser vegetation characterized by palmetto and hardwoods. Along the major rivers are swamps through which wind creeks and bayous. In the west is a small but distinctive area, formed by a narrow strip of sand dunes, nearly barren of vegetation, which lies along the coast between the beach and the flatwoods. The soil of nearly all of northern Florida is a grey sand of Pleistocene age, with local clay beds and occasional peat and muck deposits.

The north Florida portion of the Gulf Coast is indented by several large bays (Pensacola, Choctawhatchee, St. Andrews, Apalachicola, and Apalachee) into which flow most of the rivers of the area. More than half of the sites found are situated on these bays; half of the remainder are on sounds which are separated from the Gulf by bars and spits of sand formed by coastwise currents.

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[1] This preliminary report covers a part of the work accomplished during the summer of 1940 by a Columbia University-National Park Service archaeological survey into Florida. The authors wish to express their gratitude to their instructors and advisors, Drs. W. D. Strong and Ralph Linton, of Columbia University, who made the survey possible.

In addition, we should like to extend our thanks to the various officers of the National Park Service who gave valuable assistance at all times, especially Dr. A. R. Kelly, of Washington, D. C., Mr. C. H. Fairbanks, of Macon, Georgia, and Mr. L. G. Hill, of Foley, Alabama. In particular, we would like to point out the efficient aid rendered us at the Park Service Museum at Ocmulgee National Monument, Macon, Georgia. It is the policy of this institution to offer its facilities of processing and cataloguing to all recognized organizations carrying out archaeological research in the Southeast. WPA project 5551 (Georgia) also assisted in this work.

For permission to conduct investigations on several private properties, and for other courtesies, we are indebted to all of those landowners in west Florida who extended us this permission, and to numerous others both in Florida and Georgia.

[2] Fenneman, 1938; Cooke and Mossum, 1939; Harper, 1914; Matson and Sanford, 1913. Bibliography, see pp. 311–318 of this journal.

The potentialities of this area for human exploitation on a pre-industrial level are definitely restricted. Although the climate is favorable to heavy vegetation, as shown by the hammock lands and swamps, the soil and drainage near the coast are poor for intensive agriculture. Previous to white settlement this region had abundant game, such as deer, turkey, bear, raccoon, cougar, quail, and duck, and was especially rich in fish and shellfish. Oysters and shrimps are one of the principal

FIG. 24.—Map of area surveyed; dots indicate sites at which surface collections were made, triangles, excavated sites.

economic resources of the coast at present, and the numerous oyster and clam shell middens attest to the importance of sea food in the past. These middens also contain abundant fish and animal bones.

Typically, a shell midden site is composed of a few feet of refuse that accumulated gradually during the occupation of the site, which is located on a small natural elevation along a bay or sound. Nearby, the distance varying from 100 meters to over a quarter of a mile, is a small, conical, sand burial mound. The assumption is made that the midden represents a village from which the burials in the mound were made, and that the association is not fortuitous. This assumption is well supported by the evidence of the pottery from the two. In nearly every instance, the burial mound is less accessible by water and to foot travel

than the midden area, and is usually situated in a dense hammock or swamp.

Eighty-seven sites were listed during the season's survey (Fig. 24). At six of these, stratigraphic testing was undertaken. The total may be subdivided and classified as follows:[3]

55 shell middens
- 8 with conical sand mounds (6 of these listed by Moore)
- 31 without other features
- 1 with pyramidal mound (listed by Moore)
- 15 with conical sand mounds reported but not found by authors (14 of these were listed by Moore). In many instances the surrounding hammock land was so dense as to make a search useless in the limited time available.

21 occupation areas (very thin scattered midden)
- 1 with conical sand mound
- 4 with pyramidal mounds
- 3 with Spanish Mission ruins
- 13 without other features

9 conical sand mounds (exclusive of those listed above)
- 5 with middens reported by Moore but not found by authors
- 4 without other features (1 listed by Moore)

1 pyramidal mound

1 mound complex

The most extensive published data available on the archaeology of northwest Florida are the reports of Clarence B. Moore.[4] His excavations were confined almost entirely to the conical sand burial mounds, and these findings were presented without chronological implications. The more recent work of Fewkes[5] and Stirling[6] in the Tampa Bay district, has begun the chronological distinctions of ware types and the definition of time horizons for west Florida. Stirling has also ventured some general opinions on the position of Florida in the southeastern culture area. More distant, but important, are the chronological "yardsticks" which have been established in central and coastal Georgia and southern Louisiana (Fig. 25).

By combining the descriptive and distributional data on pottery styles compiled by Moore, Holmes, and Fewkes, with sequential evidence of pottery types from these other areas, it is possible to draw inferences as regards chronology in northwest Florida. This coastal strip, Pensacola Bay and the main body of the Florida peninsula is

[3] Moore, 1901–1918, in the first extensive survey of this coast, recorded ninety-five sites for the same area. Twenty-eight of these were re-identified by the authors among the eighty-seven mentioned above. In nearly every instance the burial mounds listed by Moore were completely or partially excavated by him. Many have been more recently excavated by unknown investigators.

[4] Moore, 1901–1918. [5] Fewkes, 1924. [6] Stirling, 1936.

geographically indicated as a key area in the study of the relationships between the western and eastern Gulf coastal plain, and the relationships of both of these to peninsular Florida. As Holmes[7] and others have pointed out, certain wares or types found in northwest Florida are referable to centers of distribution in the north, east, and west. Specifically, the complicated stamped or "Appalachian" ware seems to

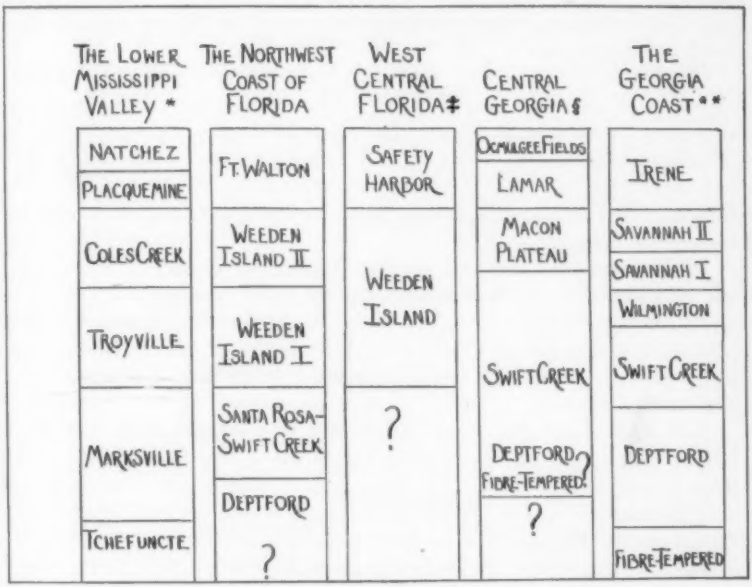

FIG. 25.—Comparative Chronological Chart.

* The Lower Mississippi Valley Column—Ford and Willey, 1940.
—also personal communication with J. A. Ford, 1940.

‡ West Central Florida—Stirling, 1936.

§ Central Georgia—Kelly, 1938.
—revised by Willey, 1940.
—personal communication with J. D. Jennings and C. H. Fairbanks, 1939–1940.

** The Georgia Coast—personal communication with A. J. Waring, Jr., J. B. Caldwell, and Preston Holder, 1937–1940.

have a hearth in Georgia. It is probable that the wide spread checked stamped pottery was developed to the east.[8] The fine incised and punctate "Apalachicola" or "Weeden Island" ware appears to stem out of the lower Mississippi Valley.[9] Whereas the "Mississippian-like" pottery around Pensacola Bay has its immediate affiliations in south and central Alabama.

[7] Holmes, 1894, p. 114 ff. [8] Nelson, 1918. [9] Stirling, 1936, p. 353.

Thus, any stratigraphic data from northwest Florida would not only solve local problems but would serve to check and synchronize the chronologies in neighboring areas. Attention, then, was concentrated on refuse middens from village sites, and no attempt was made to explore either the sand burial mounds surviving Moore's work or the large flat-topped pyramidal mounds. No village site was extensively excavated, and no information was obtained on house form, groupings, or burial practices. Sherds comprised by far the largest part of the artifacts recovered.

As pottery types serve as keys to the chronologies of adjacent regions, surface collections of sherds were analyzed in terms of comparable data from Georgia, Tampa Bay, and Louisiana. This preliminary classification of pottery was used in deciding what surveyed sites should be excavated. Geographical spacing of sites along the coast, depth and nature of midden, and probable richness of site were factors in determining the choice.

The excavation technique employed was simple: pits or test blocks one and one-half to three meters square were excavated by 10 cm. levels, digging well into sterile soil. All cultural material, and samples of shell, animal bones, and soil were saved by level. A number of these pits were distributed over the midden at a site in order to sample every undisturbed portion.

The sites excavated, listing from east to west, are Lake Jackson, Mound Field, Carrabelle, Sowell, Ft. Walton, and Gulf Breeze (see map, Fig. 24.).

The time chart (Fig. 26.) is presented as a summary of the chronological results from the six excavated sites, and may be referred to in connection with the discussion of archaeological materials. The correlation of various sites has been made on the basis of pottery types occurring in the different levels, and, therefore, is a relative, not an absolute, chronology. Any pottery type is based on a number of stylistic features found in combination, but changes occur through time, and transitions are often so gradual as to prevent sharp distinctions. However, the periods into which the pottery types have been grouped are each based on one or more "key" or "marker" types, which have been found to be sufficiently restricted in range and distinctive in appearance to allow their occurrence to be quite precisely determined. It is also hoped that the "periods" will prove to represent distinct cultures when the bare skeleton of a ceramic chronology has been given flesh and body in the form of a full and "functional" culture description. There is reason to believe that the Deptford and Swift Creek periods, as total cultures, were different from each other socially and/or

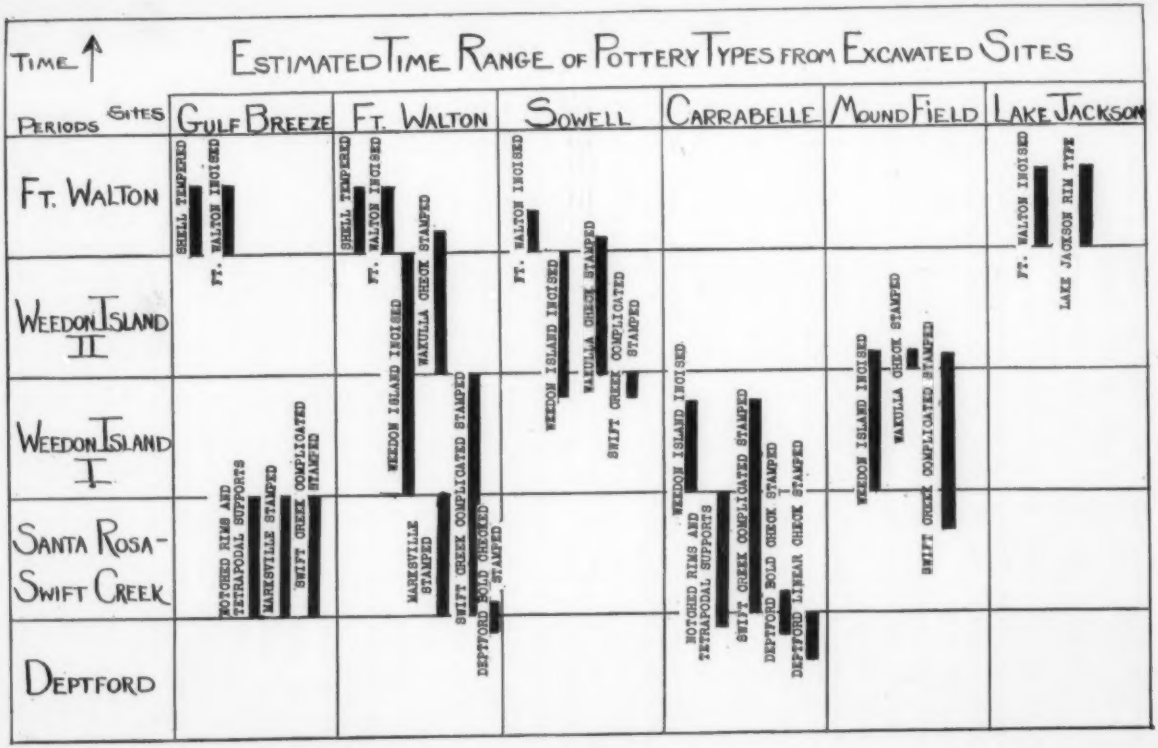

FIG. 26

(Note: The correct spelling is Weeden Island, the error was not noticed until after the cut was made.)

economically and also different from the Weeden Island I and II periods. The latter are, in turn, distinguished from Ft. Walton, a period showing Mississippian traits which are lacking in Weeden Island. Thus, although it is not the purpose of this paper to describe total cultural configurations, it should be remembered that these periods refer to "cultures" in the full sense, as well as pottery types. Further research should supply the additional information for fuller definition of these periods. It is the authors' belief that Deptford and Swift Creek periods are time intervals during which there existed cultures (to which the same names can be applied) which are "Southeastern Woodland" in the sense that that term can be used to denote fundamental relationships to the Woodland Pattern as it is now conceived. Weeden Island I and II show affinities to "basic Hopewellian." Santa Rosa, in the west, on the basis of pottery data alone, would appear to be a Hopewellian (Marksville) and Swift Creek mixture. Ft. Walton, while definitely related to the older cultures of northwestern Florida, has decided Middle Mississippian connections.

The broad archaeological problem is two-fold: first, describing a cultural continuum, albeit interrupted with cross-influences from time to time, within an area in terms of some suitable and selected criteria; and second, isolating cultures as complete entities which in the past were functioning societies. At this time the authors have data for only a partial solution of the first part of the problem. In presenting these recently obtained distribution and stratigraphic data it is also our purpose to interpret further the previous descriptive archaeology of the area.

POTTERY TYPES

The pottery types used in this study are comparable in descriptive range to those formulated by several archaeologists in the southeastern United States.[10] Each type represents a range of combination possibilities in surface decoration, materials and techniques of manufacture, and form.[11] As such they are assemblages of characteristic features of a group of pottery vessels. No one vessel (or sherd) will show all the characteristic features, but all vessels included in a type will possess a reasonable number of those specified as definitive of the type. Owing to limitations of space the following are but very synoptic descriptions of the more important types of each period.

[10] See Newsletters of the Southeastern Archaeological Conference, 1939–1940.

[11] Rouse, 1939, pp. 10–12. Rouse has discussed this concept of the type thoroughly. The type is, to follow Rouse, "an abstract kind of artifact which symbolizes the group." However, the types used in this study are apparently more restricted in range of "characteristic attributes" or "modes" than those of Rouse's West Indian studies.

FIG. 27.—Whole vessels of various types (after Moore).

A, *B*, Swift Creek Complicated Stamped (Moore, 1902, Figs. 59, 64); *C*, *E*, Weeden Island Incised (Moore, 1903, Fig. 102; 1902, Fig. 75); *D*, Indian Pass Incised (Moore, 1902, Fig. 144); *F*, Marksville Stamped (Moore, 1902, Fig. 35); *G*, *H*, Ft. Walton Incised (Moore, 1901, Figs. 90, 21). (*G*, *H*, *one-eighth actual size*, *others*, *one-fourth actual size*).

Pottery Types of the Deptford Period

Deptford Linear Check Stamped (Pl. XI, Fig. 1, A and B) is the marker type for this period. Northwest Florida pottery of this type varies but little from the original description from the Georgia Coast.[12] Like most of the types described in this paper, with the exception of fibre or shell tempered pottery, it is a coiled, sand tempered ware of a buff color. Decoration covers most of the vessel exterior and is a linear check stamp impression. The horizontal lands of the stamping are heavier and wider than the small vertical lands. This linear effect distinguishes the type decoration from other check stamped types. Rims are straight to slightly flaring. Lips are rounded. Conoidal bases are suggested by a few large fragments.

Deptford Bold Check Stamped (Pl. XI, Fig. 1, C and D) has also been described from the Georgia Coast.[13] There, and in northwest Florida, it is found associated with the linear check stamping. The two types are similar in general ware qualities. The individual checks of the bold stamped type are large (5 to 7 mm. square) and deep with heavy lands. The decoration covers the vessel exterior.

Deptford Simple Stamped (Pl. XI, Fig. 1, G and H) is the third type in the complex as defined from the Georgia Coast.[14] It conforms in ware and shape standards to the other two types. The decoration is simple linear groove stamping, apparently applied to vessel exteriors with a grooved or thong-wrapped paddle.

In northwest Florida, the linear check stamped appears to be the somewhat earlier type and the Deptford Bold Check Stamped slightly later. Deptford Simple Stamped occurs only sporadically, but would seem to be more recent than other Deptford types. All three types are more common in the St. Marks and Apalachee Bay region than to the west. The linear check stamped was not found by us west of the Apalachicola River.

Tetrapodal pot supports (Pl. XI, Fig. 1, F) may be discussed in connection with the Deptford period although they also occur on the later type, Swift Creek Complicated Stamped, and plain sand tempered ware. The supports are teat-like in form. Spacing depends upon vessel shape. On rounded bottoms they are as much as 6 cms. apart. When they occur on more markedly conoidal bases, a little rectangular plat-

[12] Caldwell and Waring, 1939, No. 5, type description Deptford Linear Check Stamped.

[13] Caldwell and Waring, 1939, No. 6, type description Deptford Bold Check Stamped; Holmes, 1903, Pl. LXXXV.

[14] Caldwell and Waring, 1939, No. 5, type description Deptford Simple Stamped; Jennings and Fairbanks, 1939, type description Mossy Oak Simple Stamped.

[WILLEY AND WOODBURY] PLATE XI
AMERICAN ANTIQUITY, VOL. VII

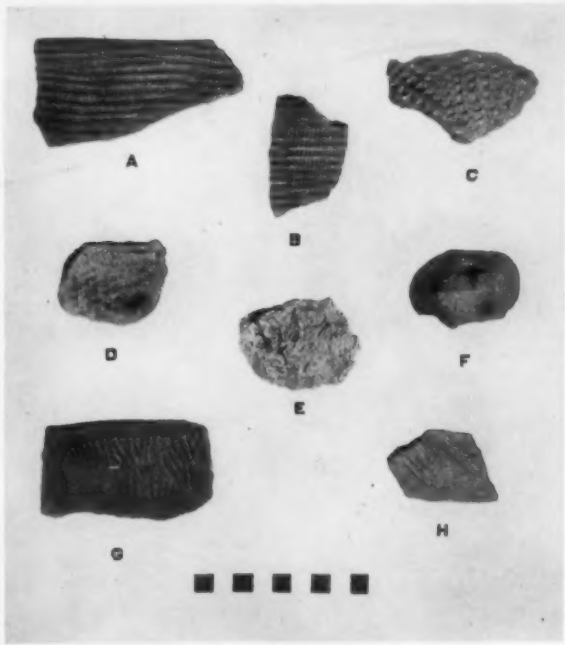

FIG. 1

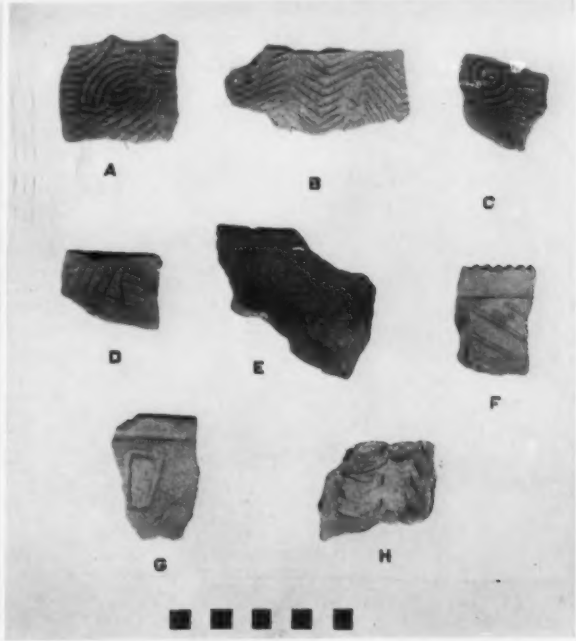

FIG. 2

FIG. 1.—Types of the Deptford Period: A, B, Deptford Linear Check Stamped; C, D, Deptford Bold Check Stamped; E, fibre tempered sherd, F, tetrapodal base; G, H, Deptford Simple Stamped.

FIG. 2.—Types of the Santa Rosa-Swift Creek Period: A, Swift Creek Complicated Stamped (early); B, Crooked River Complicated Stamped; C, New River Complicated Stamped; D, St. Andrews Complicated Stamped; E, Swift Creek Complicated Stamped (late, a Weeden Island type); F, Marksville Incised; G, Marksville Stamped; H, Santa Rosa Stamped.

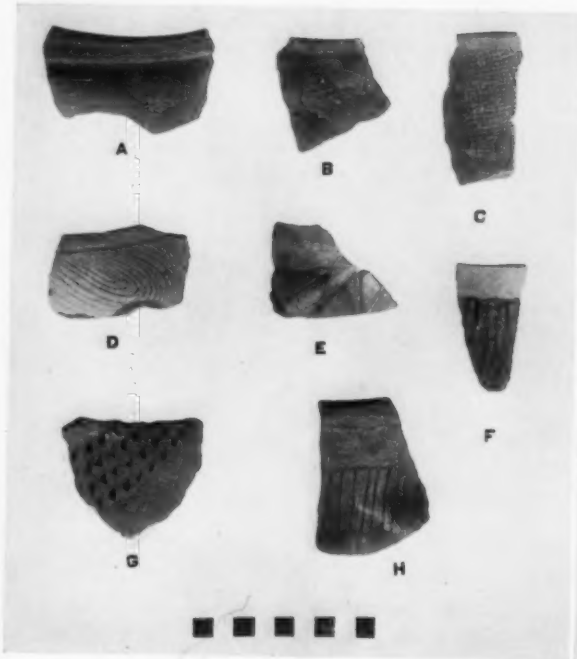

FIG. 1

FIG. 2

FIG. 1.—Weeden Island Period types: A, B, Weeden Island Incised; C, Wakulla Check Stamped; D, Indian Pass Incised; E, Keith Incised; F, Tucker Ridge Pinched; G, Carrabelle Punctated; H, Carrabelle Incised.

FIG. 2.—Ft. Walton Period types: A, B, C, D, Ft. Walton Incised; E, F, Shell Tempered Incised; G, H, Lake Jackson rim type.

form is formed in conjunction with the four legs. Similar supports are recorded for Deptford Simple Stamped and other early types[15] in Georgia. They are a common trait of the Tchefuncte period of southern Louisiana.[16] In northwest Florida, tetrapods were found by us all the way from Pensacola to Apalachee Bay.

As Deptford is stratigraphically the earliest horizon yet discovered in the northwest coast region, it is of interest to mention that a few sherds tempered with fibre (Pl. XI, Fig. 1, E) were found in the lower levels of the Carrabelle site along with Deptford check stamped types. Wherever it is found stratigraphically in the southeastern United States, fibre tempered pottery is early.[17]

Pottery Types of the Santa Rosa-Swift Creek Period

Swift Creek Complicated Stamped was first distinguished as an early variety of complicated stamped pottery in central Georgia.[18] It has been well described and illustrated in the more recent, as well as the older,[19] literature. There are some differences in the northwest Florida coast variant of this type, but similarities with central Georgia are very strong. In Florida, Swift Creek Complicated Stamped, stratigraphically isolated in its earlier stages (Pl. XI, Fig. 2, A; Fig. 27, A), more closely resembles the Georgia material than it does in its later stages. A late Swift Creek Complicated Stamped (Pl. XI, Fig. 2, E; Fig. 27, B) shows influence of the Weeden Island style. Intricacy and neatness of execution of the complicated stamped designs falls off in the late Florida stage of the type. There is a change in vessel shape from the conoidal or round based pot form to flattened globular bowls or globular jars with necks or collars, and stamped decoration is confined to a zone around the upper part of the vessel. This last is a trait in the Weeden Island tradition as opposed to the older Woodland idea of covering the vessel exterior with stamping. The heavy folded rim replaces the plain or notched rim. Although a detailed analysis of Swift Creek design elements and forms has not yet been published, Kelly has pointed out a developmental sequence at the Swift Creek site which checks in some

FIG. 2.—Ft. Walton Period types: A, B, C, D, Ft. Walton Incised; E, F, Shell Tempered Incised; G, H, Lake Jackson rim type.

[15] Jennings and Fairbanks, 1939, type description Swift Creek Complicated Stamped.

[16] Ford, 1939, personal communication.

[17] Griffin, 1939, discusses this point pp. 158–160; Kelly, 1938, pp. 30, 36, 60, and Pl. 10; Holmes, 1894, discussion of "Midden Ware"; and Haag, 1939, type description Wheeler Plain.

[18] Kelly, 1938, pp. 25 ff. and 32 ff.; Willey, 1939. pp. 145–146; Jennings and Fairbanks, 1939, type description Swift Creek Complicated Stamped.

[19] Holmes, 1903, pp. 122–123; Moore, 1902, Figs. 59, 108, 174, 205, and 272 (early type), and Figs. 64, 168, 223, and 224 (late type).

particulars with the sequences obtained at Carrabelle and Mound Field.[20]

Marksville Stamped (Pl. XI, Fig. 2, G; Fig. 27, F) and *Marksville Incised* (Pl. XI, Fig. 2, F) have been described by Setzler,[21] Ford,[22] and Ford and Willey[23] from burial mound sites in Louisiana. Greenman[24] has called attention to their sporadic occurrence in west Florida. The relationship between the Marksville complex of Louisiana and the Hopewellian of the north has also been pointed out by the above writers. These types occur with relative abundance along with Swift Creek Complicated Stamped in midden sites between Choctawhatchee and Pensacola Bays. The Santa Rosa variants of the Marksville types are a little sandier in texture than the Louisiana ware. In decoration, the plain rather than the dentate rocker or roulette stamp is the rule. Folded rims or plain rims are noted, but the characteristic "cambered" rim of Louisiana and the north does not appear. The "bird" design, common both in Louisiana and in the north, is very rare in Florida.

Santa Rosa Stamped[25] (Pl. XI, Fig. 2, H) is similar in ware qualities to the other two Florida variants of the Marksville. Vessel form is doubtful, but the presence of the notched rim or lip and tetrapodal supports is noted. Decoration consists of rows of unnotched rocker stamping widely spaced over vessel exterior. Rows may run horizontally or vertically on the vessel. The rocker stamping is not zoned with the deep, round-bottomed incising characteristic of Marksville Stamped.

Pottery Types of the Weeden Island Periods

Weeden Island Incised[26] (Pl. XII, Fig. 1, A and B; Fig. 27, C and E) is the marker type of the culture and both the periods into which it is divided in this paper. The ware characteristics of all Weeden Island types are similar to those of the Swift Creek period. Surface finish shows more tendency toward polish, but tempering and firing are about the same. The use of an interior red film is sometimes noted in plain or

[20] Kelly, 1938, pp. 28 ff. and Pl. 11. [21] Setzler, 1933.

[22] Ford, 1936, pp. 219–240. [23] Ford and Willey, 1940, pp. 65–78.

[24] Greenman, 1938. See also: Moore, 1902, Figs. 34, 35, 54, 55, 150, 194, and 228; 1918, Figs. 16; and Holmes, 1903, Pl. CVI, *b* and *c*. [25] New type.

[26] This type has been described briefly by Stirling, within the scope of the "Weeden Island ware" (1936, p. 353). See also: Moore (selected examples), 1901, Figs. 48, 49, 50, and 75; 1902, Figs. 10, 13, 15, 33, 104, 254; 1903, Figs. 67, 68, 69, 70, 74, and 87; 1907, Figs. 3, 18, 20, 27, and 28; Holmes, 1903, Pl. CI, *a* and *b*; Pl. CII, *a*; Pl. CIII, *a* and *b*, and Pl. LXXXIX, *a*; Cushing, 1896, see "Tarpon Springs" site, p. 352; Fewkes, 1924, Pls. 9, 11, 12A, 13A, 17, 18, and 19, see discussion of "Upper Layer" pottery; and Ford and Willey, 1939, No. 3, type descriptions French Fork Incised and Woodville Red Filmed.

decorated types of the Weeden Island periods. Decoration of Weeden Island Incised is extremely varied and skillfully conceived and executed. The basic idea of design is negative with positive areas left plain and slightly raised while backgrounds are often slightly depressed and filled with punctations, incised hachure, or red paint. Both incised lines and dotted punctate lines are used in outlining the design. Large triangular and hollow reed punctations are often placed in or on the ends of incised or dotted lines. There are a great number of vessel forms. The most common is the flattened globular bowl with constricted orifice. The folded rim predominates. Triangular lateral projections on the rims of shallow bowls (4 projections to a bowl) are a characteristic appendage. Bird's head effigies in semi-round relief are often affixed to the globular bowls or jars just below the rim. Weeden Island Incised is the classic burial mound pottery of west and northwest Florida. It is found in diminishing quantities to the north and east. To the west it is closely related to the Troyville-Coles Creek period type, French Fork Incised.

Weeden Island Plain[27] makes up at least 80% of the sherd count of the Weeden Island pottery complex at any village site. It is identical in ware characteristics with Weeden Island Incised, and similar to Swift Creek Complicated Stamped in texture and paste consistency. This latter similarity makes it difficult to distinguish small body and bottom sherds of the two complexes. In this study only rim sherds were classified as Weeden Island Plain, and all plain sherds with fine sand and grit temper were counted separately in a residual category. Weeden Island Plain rim profiles are most commonly incurving, except in the cases of open bowls or collared forms. Rims are always modified. Exterior folds vary from simple rounded to heavy, thick, rectanguloid and trianguloid bands. The flattened globular bowls, small collared jars, and beakers are typical shapes. Flattened bases may be either round or square.

Wakulla Check Stamped[28] (Pl. XII, Fig. 1, C) is the marker type for Weeden Island II period. In ware qualities, it resembles the other Weeden Island types. It is decorated with a fine check stamp which virtually covers the vessel exterior. Squares are from 2 to 4 mm. and very lightly impressed with lands of equal width. Rims are usually folded, and long, flat folds are stamped over with the checking. Jars with

[27] New type. See also: Moore, 1902, Figs. 103, 152, and 192; and Ford and Willey, 1939, No. 4, type description Coles Creek Plain.

[28] New type. See also: Moore, 1902, Fig. 52; 1903, Figs. 13 (p. 475) and 139 (p. 476); Ford and Willey, 1939, No. 3, type description Pontchartrain Check Stamped; and Haag, 1939, type descriptions Wheeler Check Stamped and Wright Check Stamped.

both long and short collars, globular bowls, wide-mouthed bowls with slightly incurving walls, and pot forms are usual. Wakulla Check Stamped is similar in surface treatment to most of the widespread check stamped types in the Southeast.[29]

Pottery Types of the Ft. Walton Period

Ft. Walton Incised[30] (Pl. XII, Fig. 2, A, B, C and D; Fig. 27, G and H) is the diagnostic type of the Ft. Walton period. There is an important paste change from Weeden Island to Ft. Walton which is reflected in this type. Most of the Ft. Walton types are tempered with medium to large sized particles of quartzite and other grit. These particles usually extrude onto the surface. Decoration of Ft. Walton Incised is with wide and medium-wide, deep incised lines and dot and hollow reed punctations. Designs are applied to the exterior of casuelas, open bowls, or ollas with short collars. These designs are usually on the upper walls. The upper surfaces of triangular rim projections on shallow dish-like bowls are usually decorated. Three recognizable sub-styles are grouped under this type:[31] (1) combined rectilinear and curvilinear elements forming very stylized anthropomorphic or zoomorphic figures with punctations sparingly used;[32] (2) curvilinear meander and other curvilinear and rectilinear patterns which are filled, or have the backgrounds filled, with punctations and, occasionally, hachure;[33] (3) medium-fine incised lines grouped in threes or fours to form scrolls, diamonds, loops, or other combinations of curvilinear and rectilinear designs.[34]

In addition to the lateral rim projections on open dish-bowls, bird's heads and tails placed on opposite rims of open bowls, and small vertical lugs placed on the rim exterior just below the lip are noted as appendages.[35]

Safety Harbour Incised[36] is tempered with fine sand in the Weeden Island fashion as opposed to the coarser grit temper of Ft. Walton

[29] Griffin, 1939, see discussion pp. 161–162. [30] New type.

[31] Holmes, 1903, p. 105 ff. and Pl. LIV. Holmes has these three sub-styles as "Mobile-Pensacola Ware." His data would indicate that all three are found associated. Moore's (1901) report would seem to verify this in part although some areal differentiation of these sub-styles is also suggested.

[32] Moore, 1901, Figs. 2, 4, 5, 6, 7, 15, 18, and 21.

[33] *Ibid.*, Figs. 23, 24, 29, 36, 37, 51, 58, and 99.

[34] *Ibid.*, Figs. 81, 87, 96, 97, and 98. See also: Ford, 1936, Natchez and Choctaw three and four lined incised types, pp. 40–72.

[35] Holmes, 1903, Pl. CX, *e*; Moore, 1903, Fig. 88 (p. 435) lower left and upper right sherds.

[36] This type has been described briefly by Stirling, within the scope of the "Safety Harbour Ware" (1936, p. 354).

Incised. Decoration is usually negative or positive meander, both rectilinear and curvilinear. Incising is fine lined; small dot punctates serve as design or background filler. The sureness of design of the old Weeden Island style has been replaced by a sloppy, careless execution.

Safety Harbour Incised is not a common type along the northwest Florida coast, but its presence as a minority type of the Ft. Walton complex makes a cross-tie with the late pre-historic and proto-historic Safety Harbour culture farther south. According to Stirling,[27] the Safety Harbour pottery extends as far south as the Caloosahatchie River, some little distance beyond the southern extent of the Weeden Island Types. The same author also points out that a pottery with Mississippian[28] affinities is found in association with Safety Harbour as far south as this boundary. The Mississippian type (which he compares to Ford's "Tunican") he notes is more plentiful to the northwest. The Ft. Walton and Safety Harbour complexes are obviously of mixed origins, Mississippian and local Floridian. The latter source is presumably Weeden Island. The two strains of influence are factored out when their features are summed up as pottery types: Ft. Walton Incised represents the Mississippian influences, in much greater intensity, which have been welded and reorganized, along with old local elements, into a new and unique type; Safety Harbour Incised, with much less of the Mississippian influence, carries on the old Weeden Island tradition in purer form farther to the south.

Lake Jackson Plain (Pl. XII, Fig. 2, G and H) is a tentative name given to a range of rim and appendage styles. The ware is grit tempered and resembles Ft. Walton Incised. Rim forms often flare or curve out above a neck constriction. Some rims are unmodified; others have a pinched or fluted rim fold or strap immediately beneath the lip. Small nodes applied in a row are often used in place of the fluting. The use of small vertical lugs, flush with or projecting above the rim, is a feature relating this type to Ft. Walton Incised. Both large loop and thick strap handles obtain as well as the small loop handles noted on Ft. Walton Incised and the shell tempered types. Nodes near the top of the handle are common. Lake Jackson Plain, on the basis of present survey data, is confined to the large mound group at Lake Jackson.

Both plain and incised shell tempered pottery (Pl. XII, Fig. 2, E and F) obtains from the northwest coast. It centers to the west towards Pensacola, but it is not absent entirely from the eastern

[27] Stirling, 1936, p. 354.

[28] In this context the term "Mississippian" has reference to pottery decoration and form styles which are most closely related to a "Middle Mississippian." The term "Lower Mississippian" has also been used to describe similar styles.

section. Form and decoration bear out the thesis that shell tempering is late in this region as in other parts of the Southeast. Both follow the Ft. Walton tradition in a number of respects. Additional forms and decoration styles more characteristically "Middle Mississippian" are illustrated by Moore. These vessels are apparently shell tempered. The frog bowl,[39] the bottle,[40] and the "Moundville" type of engraving[41] on a jar are specific examples. The loop handles, also found on grit tempered wares, are a trait belonging to the general shell tempered pottery traditions to the north in the Mississippi Valley. Stratigraphically and typologically the shell tempered ware of the Gulf Coast belongs to the Ft. Walton period and culture.

THE SITES

The type descriptions are primarily based upon the pottery sherd collections gathered from eighty-seven sites, along the coast and inland, between the St. Marks River on the east and Pensacola Bay on the west. From the first, certain types and groups of types stood out as closely resembling types and type complexes from the adjacent areas (see chart, Fig. 25). In this manner, certain leads were offered which made it possible to temporarily formulate large typological units. For purposes of tracing distributions and for preliminary seriation, types were combined into the Deptford, Santa Rosa-Swift Creek, Weeden Island, and Ft. Walton complexes. Sixty-four sites which yielded sufficient sherd material, were assigned to a complex, or complexes, on the basis of the numerical and proportional strength of type sherds found at each site.

After making these assignments, it was noted that the Deptford complex was found only to the east in Franklin and Wakulla counties.[42] Swift Creek Complicated Stamped, and the related complicated stamped types, were found relatively "pure" on sites in Bay, Franklin, and Wakulla counties while in the west they were found mixed with Santa Rosa Stamped and the Marksville types. Sites on which Weeden Island Incised and other related types obtained were evenly distributed all along the northwest coast section. This uniform distribution also held for the Ft. Walton complex.

The temporal relationships of the complexes were suggested by a study of the complex associations at the different sites. Sixty-one of the

[39] Moore, 1901, Fig. 27. [40] *Ibid.*, Fig. 82. [41] *Ibid.*, Fig. 53.

[42] Small amounts of the types Deptford Bold Check Stamped and Deptford Simple Stamped were found farther west.

sixty-four sites showed only one or two complexes.[43] Their associations may be expressed in the following tabular form:

	Ft. Walton	Weeden Island	Santa Rosa-Swift Creek	Deptford
Ft. Walton	19 "pure sites"	13	2	0
Weeden Island	13	20 "pure sites"	3	0
Santa Rosa-Swift Creek	2	3	7 "pure sites"	2
Deptford	0	0	2	0 "pure sites"

These horizontal associations of complexes give indications of an overlapping series running from Deptford through Santa Rosa-Swift Creek, Weeden Island, and Ft. Walton in that order. There are two instances of association that do not agree with this seriation, that of the Ft. Walton and Santa Rosa-Swift Creek combinations. It should be pointed out that on the strength of these data alone, a Deptford complex could never have been postulated as the Deptford types were not isolated at any one site. It is here that direct reference was made to an adjacent area. The time direction of the series is also forecast by the stratigraphic columns outside of the northwest Florida area. However, there is internal evidence for Ft. Walton being the "top" as early European contact material is found on Ft. Walton sites.[44]

Lake Jackson

The Lake Jackson site is located on the edge of an old lake bed in the red clay hill country north of Tallahassee, Florida. There are six pyramidal, flat-topped mounds and one low, rounded formation which may be an artificial mound. Sherds and flint scrap are scattered over the village area between the mounds. Two pits 3×3 m were dug into the village area near the largest of the mounds. No physical or cultural differentiation was detected in a rich but relatively thin midden of about 50 cm in depth. Ft. Walton Incised, related types, Lake Jackson Plain, and a general, residual category of sand and grit tempered plain body sherds were the most common types. A few pieces of Safety Harbour Incised were recorded.

[43] Of the remaining three sites, two had three complexes each, and one site had all four complexes represented in the surface collections.

[44] Moore, 1901, pp. 423–432 and 473–496.

Carrabelle[45]

The Carrabelle site is more typical of the sites and area investigated during the season's survey. It is a shell midden on a low sand ridge extending along the Gulf Coast for about 200 m. The ridge lies some 70 or 80 m back from the present beach. The midden has been cut through by a railroad right-of-way which exposes one meter of mixed shell and black midden on each side of the embankment. Sherds were very abundant along this cut and on the surface. Five test blocks were excavated at random spots in the midden within a 50 m radius. These varied in depth from 60 to 100 cm, depending upon midden thickness. All material was removed in 10 cm levels. The general results of this stratigraphy may be seen on the chart (Fig. 26).

By comparing type percentages from two of the blocks with those from the other three, a continuity, beginning with Deptford types and carrying well into Weeden Island can be reconstructed. Throughout, the appearance of a type or set of types seems to occur as a gradual replacement rather than as a sudden break. This is well illustrated by the life span of Weeden Island Incised overlapping the latter half of Swift Creek Complicated Stamped. Not only does this overlap indicate the contemporary existence of alien decoration techniques, but there is also evidence of cultural fusion as seen in the modification of Swift Creek rim forms to conform to Weeden Island styles.

Despite the fact that Ft. Walton types were found scattered over the surface, this complex was not found in stratigraphic position, and Weeden Island marked the top of the excavated sequence at the site. The concept of Weeden Island II was not formalized until after the classification of materials from the Mound Field and Sowell excavations. Upon rechecking, it was noticed that Weeden Island II sherds were present in the Carrabelle surface collections; however, this period was not obtained stratigraphically in the excavated blocks.

A peculiarity of the midden, associated with the first occurrence of the Weeden Island types, was the abrupt lessening of shell content in favor of black organic material with only a small admixture of shell. Animal and fish bones, another clue to food materials, continued in the same general proportions from Deptford through Weeden Island. This same phenomenon occured with the same cultural shift at the Mound Field site.

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[45] In most instances, sites selected for excavation were those showing two or more complexes in association in the surface collection. Carrabelle had all four represented. It should be made clear that this site does not tally with the location of a "Carrabelle" site listed by Moore in his 1918 report. Apparently this is not the same midden.

Mound Field

The Mound Field village occupation has approximately the same physical extent as that at Carrabelle. It is located on a sand knoll in a swamp, a few miles from the coast near the little hamlet of Spring Creek. A sand burial mound, in association with the village, was excavated by Moore in 1901–1902.[46] The occupied knoll is a few hundred meters from the burial mound. As there is no other village in the immediate vicinity, it seems likely that the mound dug by Moore was the mortuary mound built by the inhabitants of the shell midden. The midden is a mixture of shell and organic matter with shell more abundant in the lower levels, as at Carrabelle.

Stratigraphy at Mound Field is based on results from two 3×3 m blocks. Each was excavated in nine 10 cm levels. From a comparison of type frequencies by level with the Carrabelle site a case of vertical overlap between the two sites can be established. The Mound Field sequence has its inception in Swift Creek times, just previous to the advent of Weeden Island. A few sherds of the type Wakulla Check Stamped[47] in the upper levels, and the greater amount of Weeden Island types, indicate that Mound Field was occupied through Weeden Island I and into the beginnings of Weeden Island II.

Sowell

At the Sowell site, on the west side of St. Andrews Bay, Wakulla Check Stamped is the dominant decorated type. This check stamped type is the most widespread type in northwest Florida, and, as indicated under the synoptic description of the type, has a close relationship to similar check stamped pottery throughout the southeastern United States. All present evidence, at Sowell, Mound Field, and at Ft. Walton, places Wakulla Check Stamped in what we have defined in this paper as Weeden Island II, that interval in the cultural continuum where the complicated stamped types of the Swift Creek genre are dying out or have disappeared, and where the incised and punctate styles of Weeden Island are reaching a climax. Wakulla Check Stamped and Weeden Island Incised may reach a contemporary culmination; however, it is suggested that the check stamped type continues on into the Ft. Walton horizon.

The upper levels of two pits at Sowell, excavated to total depths of 80 and 120 cm, show Ft. Walton Incised and plain shell tempered

[46] Moore, 1902, pp. 306–320. Moore shows Weeden Island types from this mound.

[47] The appearance of this type along with the disappearance of complicated stamped types marks the beginning of Weeden Island II.

ware. Neither of these types were found in the middle or lower levels in any appreciable quantity. Here, as at Ft. Walton and Gulf Breeze, the Ft. Walton period is represented by what seems to be only a very thin overlay intermixed with the upper portion of earlier refuse.

It should be mentioned that Moore excavated a burial mound a few hundred meters from the Sowell midden. Materials from that mound agree with those found in the village except for the Ft. Walton types.[48]

Ft. Walton

Near the eastern end of Santa Rosa Sound, on the mainland, is a large pyramidal mound with a flat top and an approach or ramp on the south side facing the Sound. The mound itself is some 100 m from the water's edge. Two modern highways pass on the south and north sides of the mound, and the modern city of Ft. Walton has grown up in the old village and partially destroyed the midden. Fronting on the beach, just south of the mound, is a shell midden on which a number of houses have been built. In one vacant lot, in which the midden appeared undisturbed, seven test blocks, varying in size from 3 to 1½ meters square, were put down. Four of these blocks cut through at least 1.2 m of almost solid shell. Sherd material was not as abundant per level as at the Mound Field or Carrabelle sites. Alternate lensing of small clams and oyster shells was noted in the pit profiles, but cultural changes could not be correlated with these lenses.

The earliest levels of the midden represented the Santa Rosa-Swift Creek period. This was succeeded by Weeden Island I and II, and Ft. Walton in this order. Deptford Bold Check Stamped and Deptford Simple Stamped were found in small quantities in the lower levels. These two types, on the basis of data from the Carrabelle site, overlap with, but have a slightly later climax than Deptford Linear Check Stamped (see Fig. 26). Material is insufficient to postulate a Deptford period at the site, although it would appear that these styles were dying out when Ft. Walton was first occupied.

Swift Creek Complicated Stamped and the Marksville and Santa Rosa types occur coevally in the midden. This is the best data on the association of these two sets of types to form what has been called the Santa Rosa complex. Weeden Island Incised, Weeden Island Plain, and related types succeed the Santa Rosa complex. Wakulla Check Stamped reaches a quantitative maximum toward the upper end of the Weeden Island series, verifying the results from the Sowell site. Ft. Walton types come in only in the topmost levels.

[48] Moore, 1902, pp. 167–174.

Moore's excavation[49] into the big pyramidal mound at this site uncovered individual, and presumably intrusive, burials in the top of the mound. The pottery found with these burials is all of the Ft. Walton complex and quite comparable to that taken from the upper levels of the midden. Although Moore did not differentiate between Weeden Island and Ft. Walton incised types in text description, it is interesting to note that he specifically mentions no stamped sherds were found as grave offerings. A good number of stamped sherds were found in the fill of the mound. Moore interprets this as a difference between a ceremonial and a utilitarian ware.[50] The appearance of stamped sherds in the body of the mound is not at all surprising in the light of the stratifications from the associated midden. We may conclude that the Ft. Walton site was an occupation center long before the Ft. Walton period and the burial of the individuals with grave goods in the summit plateau of the mound. From other data it seems reasonable to assume that the pyramidal mound builders were of the Ft. Walton period and used the earlier refuse in constructing the mound.[51]

Gulf Breeze

The Gulf Breeze site is one of several small midden accumulations on the low bank of the shore above the Gulf beach. It is near the western end of Santa Rosa Sound, a few miles east of Pensacola Bay bridge. Six small test pits were dug at this site. The only stratification was that of a sprinkling of shell and grit tempered Ft. Walton types over a mixture of Swift Creek and Marksville types. A very few Deptford sherds were associated with the Swift Creek and Marksville mixture. The midden was mixed shell and organic matter. It averaged only 70 to 80 cm in depth. The surface collection data, showing the absence of both periods of Weeden Island, was verified in the digging.

SUMMARY AND CONCLUSION

In summary, our earliest evidences for human occupation along the northwest Florida coast are of a people living on the beaches, bay shores, and rivers, and depending upon shellfish for a major portion of their diet. Animals, birds, fish, and reptiles also served as foods. These people, whom we may call the "Deptford," made a coiled, sand

[49] Moore, 1901, pp. 435–454. In 1900 the name of the town was "Camp Walton," Moore uses this name.

[50] *Ibid.*, pp. 438–439.

[51] Moore, 1901, p. 454. In this connection it should be noted that a small conical sand mound (probably of the Weeden Island type) once existed in the immediate vicinity but was destroyed previous to Moore's visit to the site.

tempered pottery which they decorated with rather simple forms of impressions or stamping such as linear check and plain linear grooves. As in all periods on this coast, stone artifacts were scarce; but a few large, triangular-bladed projectile points, with and without barbs, pebble hammerstones, and small flat whetstones can be identified as of the Deptford period. Nothing is known of the type of dwelling used or of the methods of burial. Because of the types of pottery always found in association with the burial mounds in this region, it seems safe to assume that the Deptford people did not build artificial mounds. This assumption is strengthened by the fact that artificial mounds have not been satisfactorily associated with the Deptford culture as it is found on the Georgia coast.

The Deptford culture, either by a movement of peoples or by diffusion, probably came into northwest Florida from centers on the south Atlantic coast. Nothing is known of pre-Deptford times in northwest Florida although it is possible that people making fibre tempered pottery had inhabited the region as they did the south Atlantic coast. Regardless of what happened earlier, the Deptford culture continued for an unknown span of time in the Apalachee-Apalachicola Bay country.

A change is marked by the introduction of complicated stamped pottery, principally of the Swift Creek type. Again little is known of the movements of peoples. Excavation shows a pottery which is decorated in a sophisticated manner, and this pottery is more abundant than the earlier Deptford pottery. Fragments of two ground stone axes or celts were found in Swift Creek association. Otherwise there were no significant differences found between the stone artifacts of Swift Creek and Deptford. Shellfish gathering presumably remained the basic economy. There are no data as to houses or burial types in the Apalachee-Apalachicola section. The origins of Swift Creek are obscure; however, the Swift Creek type of pottery seems to center in central or south Georgia. Hence, it is possible that Swift Creek came into west Florida from the north. Its spread after reaching the Gulf Coast was most certainly from the Apalachee-Apalachicola region to the west.

Around St. Andrews Bay, and to the west, the presence of Marksville pottery in association with the Swift Creek forms the Santa Rosa complex. Although proof is not conclusive, there is a suggestion that the burial mound idea, for the interment of great numbers of secondary and flexed burials, came into northwest Florida at this time. Moore illustrates and describes Swift Creek and other early complicated stamped pottery and variant Marksville styles from burial mounds in

the Santa Rosa area.[52] None of the later Weeden Island types are shown from these mounds.

In Weeden Island we come to the climax period of the northwest Florida coast. Sites are exceedingly numerous. Conical sand burial mounds, so often described by Moore, are a common feature of the culture. The pottery of this period has close relationships to the Troyville and Coles Creek pottery of the lower Mississippi Valley but is uniquely Floridian. Although the burial mound collections show a number of unusual objects other than pottery artifacts, the village middens yield little more than in the previous periods. An occasional shell pendant, quartz crystal fragments, pieces of mica, and celt fragments are all that were found in the excavation of four sites which had Weeden Island occupations. Large stemmed projectiles continue in Weeden Island. One small, triangular Mississippian type point was found. No houses or burials were encountered, but the associated burial mounds explain the absence of skeletal material in the middens. It is possible that the Marksville-Troyville stream of influence brought horticulture into west Florida at this time. Nevertheless, the coastal environment, with its unsuitable sandy soil but stable supply of shellfish, probably acted as a deterrent to intensive horticulture.

Weeden Island II is divided from Weeden Island I on the basis of pottery changes. The reemergence of check stamped pottery after a long period of its absence in northwest Florida may indicate a revival of influence from the east. During the Swift Creek period this check stamped tradition had been abandoned. Later, Swift Creek had been partly replaced and modified by the strong western influences which formed the Weeden Island culture. This western tradition continues in Weeden Island II, but appears to be losing some of its vigor with the advent of Wakulla Check Stamped. This is the ceramic history and picture at the time of the influx of new elements which, in part, make up Ft. Walton.

These foreign elements in Ft. Walton probably found their way down the southward flowing rivers of Alabama to the northwest Florida coast. This may have been an invasion of peoples as well as the transmission of cultural influences. In time, it correlates with the mass Mississippian invasion of the eastern part of the Southeast. The idea of the pyramidal, flat-topped temple mound, as opposed to the small, conical, sand burial mound, is a part of this new culture. There are new pottery types reminiscent of Middle Mississippi. Yet this was not a

[52] Moore, 1902, "Alligator Bayou" p. 150 ff., and "Anderson's Bayou" p. 160 ff.

complete cultural replacement. Ft. Walton represents a fusion of the new influences with the old traditions of Weeden Island.

It was during this time that European trade goods began to filter in to the Indians. Some of the Ft. Walton sites show such artifacts as European metal and glass beads; others do not. The culture, from archaeological evidence, does not appear to have been broken at this time. Spanish colonization and missionization of the Indians of west Florida may have begun, but had not yet reached its peak. Although a thorough documentary identification of sites is needed to substantiate it, a belief that the Ft. Walton sites on the northwest coast of Florida were the villages of the Apalachee and other southern Muskhogean speaking tribes, during the seventeenth century, seems reasonable on present evidence.

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December, 1940

THE NATCHEZAN CULTURE TYPE[1]

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RECENT excavations and laboratory analyses by the Statewide Archaeological Survey of Louisiana have provided the means for a better definition of the Natchezan culture type and its antecedents. Comparative ethnological data were obtained from Dr. John R. Swanton and Dr. Andrew C. Albrecht.[2]

The archaeological data were obtained from six excavated sites and several surface collections. Only two of these sites were documented; the Fatherland Plantation near Natchez, Mississippi, and the Bayou Goula site in Iberville Parish, Louisiana. The undocumented sites were the Angola Farm in West Feliciana Parish, Louisiana; the Laborde site in Avoyelles Parish, Louisiana; the Ring site in Warren County, Mississippi; and the Glass site also in Warren County, Mississippi. With the exception of Bayou Goula and Laborde these sites have been mentioned by Ford.[3]

All sites but Ring cemetery and the Glass site contained aboriginal Natchezan artifacts in association with European trade objects which are representative of the early historic period, circa 1700 to 1760.[4] The documentary evidence corresponds to these dates.

SITES

The Fatherland Plantation Site[5]

The Fatherland Plantation site, near Natchez, Mississippi, has been identified as the Grand Village of the Natchez. If the identification is correct, then the dates of occupancy were from some time prior to 1700 until 1730, at which time the Natchez were dispersed from this village by the attacks of the French.

Part of the site, a low, circular burial mound, was excavated by Moreau B. Chambers in 1930 and reported on by Ford in 1936. The materials from this excavation, and a surface collection from an adjoining field, constitute the only available archaeological record which admittedly is incomplete.

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[1] This paper was prepared with the assistance of Louisiana Work Projects Administration Official Project No. 165-1-64-59. Dr. Fred B. Kniffen, Dr. Andrew C. Albrecht, and Dr. J. A. Ford also provided considerable aid.

[2] Most of the ethnohistorical data have been taken from Swanton, 1911. (Bibliography, see pp. 311–318 of this journal.) Much of this material has been reorganized by Andrew C. Albrecht, and his syntheses were utilized in this paper. But since his work has not been published the references herein were taken from Dr. Swanton's report.

[3] Ford, 1936, pp. 50–71. [4] Quimby, 1939, pp. 25–31; 1942.

[5] Ford, 1936, pp. 50–53, 59–60.

The Angola Farm Site

Although there is no direct documentation of the Angola Farm site in West Feliciana Parish, Louisiana, it was in this region that first lived the Houma and later the Tunica. Ford has cited historical evidence quoted from Swanton to show that the Houma lived in the area from some time prior to 1699 until 1706 when they were overthrown by the Tunica whom they had allowed to come among them. The Tunicas had left their homeland in the Yazoo River Valley of Mississippi to escape the Chickasaws and they remained in the region of the Angola site until the latter part of the eighteenth century.[6]

As Ford has already pointed out, the archaeological remains from Angola Farm are indicative of the Natchez culture complex;[7] therefore, either these Tunica possessed a Natchez type of culture in so far as it is manifested archaeologically, or else they took over the probable Natchezan culture type of their Houma hosts, who were Muskhogean speaking peoples like the Natchez. In the writer's opinion, the early historic culture complex of the Tunica in the Yazoo Valley was not correctly identified. Sites tentatively identified by Ford as belonging to the Tunica complex[8] were all prehistoric, and upon the basis of more recent investigations, they probably should be related to the Plaquemine culture which preceded the Natchezan type.[9] It is, therefore, highly probable that the Tunica tribes for the most part possessed an archaeological culture type which is Natchezan and which varies no more from the culture of the Natchez tribe proper than does the culture of other Muskhogean tribes such as the Bayogoula, Mugulasha, probably Houma, Taensa and Avoyel, who would be expected to possess a Natchezan culture. In view of these probabilities, and the archaeological evidence from the Angola Farm site, it is likely that the culture represented there can be identified with the Tunica, and is of the Natchezan type.

Additional evidence that the Tunica, dwelling within the Natchez domain, had a Natchezan culture is provided by the fact that two subdivisions of the Natchez tribe, the Tioux and the Grigra were probably Tunica-speaking peoples.[10]

The Bayou Goula Site

Near the village of Bayou Goula in Iberville Parish, Louisiana, is an historic Indian site which recently was excavated by the Statewide Archaeological Survey of Louisiana. Documentary evidence supple-

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[6] *Ibid.*, pp. 129–140. [7] *Ibid.*, p. 140. [8] *Ibid.*, pp. 98–140.
[9] Ford, Quimby, and Beecher, N.D. [10] Swanton, 1911, p. 33.

mented by the presence of trade materials suggests that this was the village of the Bayogoula. According to Swanton, the French established contact with the Bayogoula shortly after the arrival of Iberville in 1699, although there is a possibility that they were contacted by Tonti in 1686.[11]

At the time of their discovery, the Bayogoula were sharing their village with the Mugulasha, another Muskhogean-speaking tribe. In 1706, the Taensa, driven southward by the Yazoo and Chickasaw, were received by the Bayogoula and Mugulasha, but the Taensa treacherously massacred their hosts, and for a while the village was practically deserted.[12] The Bayogoula were still a tribal unit in 1739, but in 1758 they were listed as one of the Louisiana tribes destroyed by the liquor trade.[13] The Bayogoula and some Mugulasha, therefore, were joint occupants of the village during the historic period, although there were in this vicinity Taensa and Houma who also might have occupied the village for a short time.

Other Natchez Sites

Both the Ring and the Glass sites in Warren County, Mississippi, have been mentioned by Ford.[14] They are rather exceptional in that neither contained any European trade objects, and therefore they may antedate French contact. Both sites were cemeteries: the Ring site consisted of a number of extended skeletons in pits upon a hill top, and the Glass site consisted of burials in intrusive pits in the summit of a temple mound. In each case aboriginal artifacts, mostly Fatherland Incised pottery, accompanied the burials.

The Laborde site is located along a former course of the Red River about five miles east of the town of Echo in Avoyelles Parish, Louisiana. In 1911–1912, limited excavations were undertaken here by C. B. Moore.[15] The site consisted of a mound about ten feet high and ninety-five feet in diameter, of irregular outline and with a flat summit. Probably this mound was originally a truncated pyramid which had been considerably modified by digging, erosion, and cultivation, all of which were noted by Moore.

The summit of the mound contained a number of burial pits, probably intrusive from the surface. The majority of these burials, according to Moore, consisted of piles of bones and crania. A few skeletons were extended, however, and accompanied by red pigment and burial furniture as follows.

There were several small, chipped flint projectile points, a small,

[11] *Ibid.*, p. 274. [12] *Ibid.*, p. 270. [13] *Ibid.*, pp. 278–279.
[14] Ford, 1936, pp. 69–70. [15] Moore, 1912, pp. 504–507.

ground quartzite celt, a deposit of pebbles, perhaps the remains of a rattle, a clay pipe of the style requiring an added stem,[16] and five pottery vessels. One of these vessels was a fragmentary plain bottle, two others were "diminutive pots with scanty line decoration," and another was a red filmed interior bowl with four parallel incised lines encircling the upper rim. This vessel from the description is similar to Fatherland Plain or perhaps Fatherland Incised without the body decoration. Still another vessel, illustrated by Moore,[17] is Fatherland Incised and is similar to examples of this type from Natchezan sites south of Baton Rouge, three lines being used to carry out the body decoration.

With another burial, Moore found a number of glass beads of European manufacture and possibly the copper stains noted on bones in other graves by Moore were also hints of European contact. Although not conclusive by any means, it seems reasonable to assume that the Laborde site is historic.

The aborigines who were occupants of this area in early historic times were the Avoyel, a tribe probably resembling the Natchez.[18] Swanton suggests that the Avoyel "were probably a small branch of the Natchez, separated on account of internal disturbances."[19] The ceramic similarities with Natchez sites in Mississippi possibly may corroborate Dr. Swanton's suggestion.

Other sites of the Natchezan complex from which surface collections have been made are the Foster and Bluff sites in Mississippi, and the Natchez Fort site in Louisiana. All of these were described by Ford.[20] Additional sites in Louisiana indicated by surface collections are the Nick Plantation site No. 4 in Avoyelles Parish, and the Bayou Des Allemands site in Lafourche Parish.

In the following presentation of traits, the emphasis has been placed upon those sites which produced the most data, namely Fatherland, Bayou Goula, and Angola Farm. The trait complexes have been presented by topic and discussed in terms of both the historical and archaeological evidence.

CULTURAL TRAITS

Mounds

Mounds of the pyramidal, flat topped class were conspicuous features of both the Bayou Goula and Fatherland Plantation sites, although there were no mounds at the Angola Farm site. At the Bayou Goula site there was a pyramidal mound at either end of the

[16] *Ibid.*, Fig. 10. [17] *Ibid.*, Fig. 11. [18] Swanton, 1911, pp. 272–274.
[19] *Ibid.*, p. 272. [20] *Ibid.*, pp. 65, 71.

plaza; the ethnohistorical sources, however, mention only temples fronting the public plaza and neglect to state whether or not the temples were raised on mounds.[21] But at the Fatherland site mounds eight or ten feet high upon which the temples stood were mentioned by Du Pratz and others; thus at this site both documentary and archaeological evidence are in agreement.[22]

Plaza

Both archaeological and historical evidence testify to the presence of plazas at the Bayou Goula and Fatherland sites. With reference to the latter place, Iberville described a plaza which was 250 paces wide and 300 long.[23] The log book of the frigate, *Le Marin*, states that there was a central plaza "like a parade ground" in the village of the Bayou Goula.[24] Archaeological evidence corroborates the statement, for house and palisade trenches as well as pits and thin midden deposits were found on the plaza between the two mounds. Investigations at the Angola Farm site were confined to the cemetery; evidence of the village site was not found.

Palisades

Iberville described the Bayogoula village as being fortified with a palisade, ten feet high, made of closely spaced cane.[25] At the Bayou Goula site, there are narrow wall trenches several hundred feet in length which are probably the remnants of the fortification. Although it was not possible to completely excavate all of these trenches, enough work was done to suggest that palisaded areas were rectangular. It also seems logical that the cane would have been set in trenches. The archaeological investigations at the Fatherland site were too limited to disclose the presence of a palisade, if present, and there seems to have been no specific historical reference to a fort at the Grand Village. Du Pratz, however, describes a Natchez fort which was circular in ground plan and made of large posts. The posts were buried about five feet in the ground and the finished palisade was about ten feet high.[26]

Temples and Chiefs' Houses

Among the Natchez, both the temple and the chief's house were on mounds which stood in the plaza.[27] The chief's cabin seems to have been similar in construction to the temple, and Du Pratz stated indirectly that the ground plan of the temple was rectangular[28] with large posts

[21] *Ibid.*, pp. 275–277. [22] *Ibid.*, pp. 162–163. [23] *Ibid.*, p. 163.
[24] *Ibid.*, p. 276. [25] *Ibid.*, p. 275. [26] *Ibid.*, p. 133.
[27] *Ibid.*, p. 163. [28] *Ibid.*, p. 163.

set at the corners and smaller ones in between, the whole with a mud covering nine inches thick. Descriptions of the Natchez temple roofs are variable, although there seems to have been agreement that two or three wooden bird effigies surmounted the top of the temple. Charlevoix possibly implies the presence of a gable roof;[29] Du Pratz describes a vaulted roof with a very short ridge pole;[30] and Penicaut suggests a dome-shaped roof.[31] Probably all three observers were describing the same type of roof. Another trait of construction was an inner sanctuary set apart in the southern third of the buildings as mentioned by Du Pratz.[32]

The excavations at the Fatherland site did not include investigations of the mound summits, therefore data concerning the temple and chief's house plans are lacking. At the Bayou Goula site, however, an incomplete post-mold pattern possibly suggestive of a corner of a square or rectangle was found on the summit of the secondary mantle in the one mound completely excavated. Iberville described two temples at this site which were round, thirty feet across, constructed of a framework of poles covered with mud and cane mats, and provided with a special shed or portico. He also stated that the houses were constructed like the temples.[33] Interestingly enough, all of the houses at the Bayou Goula site were rectangular in outline. Du Ru described one temple as a little larger than the other, shaped like the dome of the "College du Plesis," and covered with thatch and cane mats.[34] Despite the domeshaped roofs of the temples, archaeological evidence suggests the ground plans to have been rectangular, as among the Natchez. Unfortunately, the archaeological results here had little to offer concerning the finer points of temple construction.

House Types

The best archaeological evidence on house types has been found at the Bayou Goula site, although cultivation had removed the house floors as well as the upper portions of the wall trenches. The houses were rectangular in ground plan, about twenty feet long and fifteen feet wide, and were outlined by wall trenches at least a foot deep and not more than a foot wide. Despite the profusion of fences, barns, outhouses, and other obstacles, eight of these houses were excavated. Six of them had middle partitions also manifested by a wall trench.

Iberville described the village as containing 107 cabins built like the temples; some larger, others smaller; some provided with sheds or

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[29] *Ibid.*, p. 159. [30] *Ibid.*, p. 162. [31] *Ibid.*, p. 159.
[32] *Ibid.*, p. 162. [33] *Ibid.*, p. 275. [34] Albrecht, 1941.

porticos supported by posts.[35] There was no statement concerning two-room houses or middle partitions, and it seems unlikely that a complete wall trench would have been required for a portico. Nevertheless, there is the possibility that the divided houses were those with porticos. But on the other hand, there is a remote chance that these middle partitions indicate some kind of an inner chamber similar to that which Du Pratz described in the southern third of a Natchez temple.

Contemporary observations upon the Natchez house types were made by Du Pratz, but since the Fatherland village site has not yet been excavated, there are no archaeological data to compare with the documentary evidence. Du Pratz described a house with a rectangular ground plan made of poles set into the ground. The tops of the poles were drawn together so that the roof was dome-shaped and strips of cane were interwoven among the poles. A plaster of mud and Spanish moss covered the framework, making walls about four inches thick. Then cane mats were placed over the walls, both inside and out. Next, the house was thatched with bundles of grass held in place by cane splints, and finally the whole cabin was covered with more cane mats firmly bound in place.[36]

Burials

According to Iberville and to the log book of the frigate, *Le Marin*, the Bayogoula placed their dead on burial platforms located fifty paces from the village. The platforms were on four posts, four to seven feet high, and the bodies were wrapped in cane mats, the uppermost mat shaped like a roof.[37] These data in part correspond to the conditions found at the Bayou Goula site, where there were seven secondary burials, one secondary flexed burial, and two burials in wood chests placed in pits, all of which were intrusive into the mound mantles. Accompanying the skeletons were European glass beads, brass tinklers, and the like, as well as artifacts of native manufacture. The latter, however, consisted mostly of potsherds and may have been merely part of the pit fills. A few fragmentary cane impressions suggestive of cane wrappings also were found with burials.

Inasmuch as the burials were in pits intrusive into the summits of the mound mantles, there is a possibility that the burials were made in a temple floor. Although there is no documentary evidence for the presence of such a custom among the Bayogoula and Mugulasha, Dumont in speaking of the Natchez, mentioned that the chiefs were interred in the temple.[38]

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[35] Swanton, 1911, p. 275.
[36] *Ibid.*, pp. 59–60.
[37] *Ibid.*, pp. 275–277.
[38] *Ibid.*, pp. 157, 161.

In Mound C at the Fatherland Plantation, Chambers found fifty-nine skeletons in different positions at the base of the Mound. Two infant burials were in wood chests. The other skeletons were extended, flexed, in bundles, and were accompanied by European trade objects and native artifacts.[39] Charlevoix saw chests containing bones inside of a Natchez temple, but there seems to have been no reference to burial in a chest.[40] According to Du Pratz, some of the dead among the Natchez were placed upon burial platforms, and after considerable decomposition had taken place, the bones were placed in baskets and carried to the temple where they were preserved.[41] Others were buried. From the archaeological evidence, it seems likely that the Bayogoula and Mugulasha interred some of the platform burials or bundles of bones which were kept in the temples.

The relative profusion of grave furniture at Fatherland Mound C is corroborated by the documentary evidence of Father Le Petit who says of the Natchez in general: "When one of these savages dies his relatives . . . array him in his most beautiful dresses, . . . after which they carry him to the grave prepared for him, placing by his side his arms, a kettle, and some provisions."[42] This practice also corresponds perfectly to the archaeological evidence from the Angola Farm site.

In the excavation of the cemetery at Angola Farm, Ford found eight extended skeletons accompanied by loaded flintlock muskets,[43] brass kettles, other trade objects, and aboriginal pottery. Three other skeletons were accompaned by native pottery; one of these had glass beads about her ankles. One infant was extended in a wooden chest which also contained a green glazed crockery jug and a brass kettle.

Pottery

The art of ceramics as practiced by the Natchez was described by Du Pratz as follows: "They go in search of heavy earth, examine it in the form of dust, throwing out whatever grit they find, make a sufficiently firm mortar, and then established their workshop on a flat board, on which they shape the pottery with their fingers, smoothing it by means of a stone which is preserved with great care for this work. As fast as the earth dries they put on more, assisting with the hand on the other side. After all these operations, it is cooked by means of a great fire.

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[39] Ford, 1936, pp. 61, 64. [40] Swanton, 1911, p. 160.

[41] *Ibid.*, p. 143. [42] *Ibid.*, p. 138.

[43] The muskets are assumed to have been loaded as the hammers were at half cock and the batteries closed over the flash pans. One of five barrels was sawed at the breach to test this theory; it was found to contain a charge of powder and a lead ball.

"These women also make pots of an extraordinary size, jugs, with a medium-sized opening, bowls, two-pint bottles with long necks, pots or jugs for bear's oil, which hold as many as forty pints, also dishes and plates like the French. I have had some made out of curiosity on the model of my earthenware. They were of a quite beautiful red."[44]

The fact that Du Pratz had requested of the Natchez copies of his French earthenware is very interesting, because one of the vessels excavated from Fatherland Mound C was a teapot-shaped vessel with a red slip. This vessel was a burial offering which was accompanied by trade materials. Therefore, there is the possibility that this red teapot-shaped vessel is a manifestation of Natchez cultural changes brought about by the request of Du Pratz to have pottery patterned after his imported wares. Vessels of the "teapot" variety also have been found in historic Caddo sites in northwest Louisiana and in sites which are probably historic Quapaw in southern Arkansas.[45] On the other hand, such vessels are known from late period sites in Arkansas and Mississippi which show affinities with historic cultures but do not contain trade artifacts.[46] Consequently there is still the possibility that these "teapot" vessels represent European influence, but the probability that the French introduced them through the Natchez is considerably lessened.

Du Pratz's mention of red as the color of some of the Natchez pottery corresponds to the archaeological data. A red film or slip is not infrequently found upon several types of pottery common to Natchezan sites. A variety of vessel of which there is only one example came from the Fatherland site and is characterized by a red film in line enclosed bands which form a scroll design.[47] This type of vessel has been found in sites alleged to have been historic Quapaw.[48]

In speaking of the Bayogoula ceramic activities, Du Ru mentioned large pots made of shell ground fine and baked before a fire. The pottery was very thin, light, and very fragile.[49] His statement has some significance, because Fatherland Incised, Fatherland Plain, and Bayou Goula Incised frequently have fine shell-tempering materials and Pocahontas Plain and Pocahontas Punctated are always shell tempered. All of these types are found at Natchezan sites.

Fatherland Incised. The pottery representative of the Natchezan culture is quite uniform. The most common decorated type at Bayou Goula, Angola Farm, and Fatherland Plantation has been called Fatherland Incised (Pl. XIII, 1–9; Pl. XIV, 1, 2, and 4). The most

[44] Swanton, 1911, p. 62. [45] Dickinson and Dellinger, 1940, p. 88.
[46] Moore, 1911, pp. 396–397. [47] Ford, 1936, pp. 56–57, Fig. 9.
[48] Dickinson and Dellinger, 1940, pp. 84, 87. [49] Albrecht, 1941.

frequent forms are shallow bowls with rounded or flattened bottoms although several varieties of bottles and jars were found at Fatherland site. The platform type of base which occurs on Fatherland Incised bowls and bottles from the Fatherland and Ring sites in Mississippi[10] has not been found in the Louisiana sites.

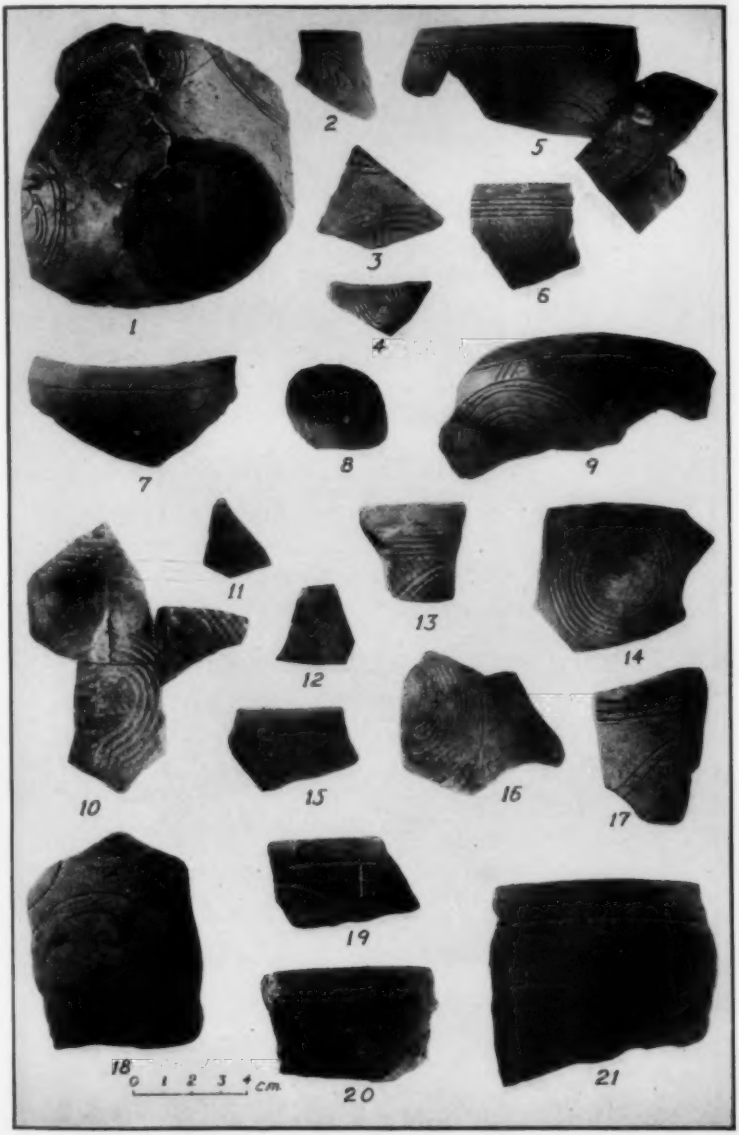
Coiling seems to have been the primary method of vessel construction. The coils, however, were well obliterated, and coil fractures are rather infrequent. The paste is very fine, granular, and extremely compact. Tempering is variable, but always very fine particles were used. These particles include ground shell, very fine grit, or very fine ground and charred organic matter. Surface hardnesses vary from 2.5 to 3 and the color ranges through buffs and grays. The vessel surfaces are very smooth. Sometimes a red film has been added to the vessel interior, exterior, or to both.

The decoration, always confined to the vessel exterior, consists of incised scrolls or meanders in a number of minor variations. In some instances it rather looks as if a comb-like instrument was used to execute the design. The incised lines which carry out these designs are arranged parallel in threes, fours, or fives. The pottery vessels from Natchezan sites north of Baton Rouge usually have three incised lines to carry out the design and those south of Baton Rouge usually have four or more incised lines. Another difference is the use of volutes in the design on vessels from the northern sites (Pl. XIII, 1). The lines themselves are narrow and shallow and the designs are usually of excellent execution.

Fatherland Plain. Fatherland Plain (Pl. XV, 4–7) is merely Fatherland Incised without the decoration. In paste, surface treatment, and form it is identical with Fatherland Incised and occasionally has a red filmed exterior or interior or both. At the Bayou Goula site only bowl forms were noted for this type. Sherds from the Fatherland site are not large enough to produce good shape criteria, but it seems likely that bottles and jars were present as well as bowls.

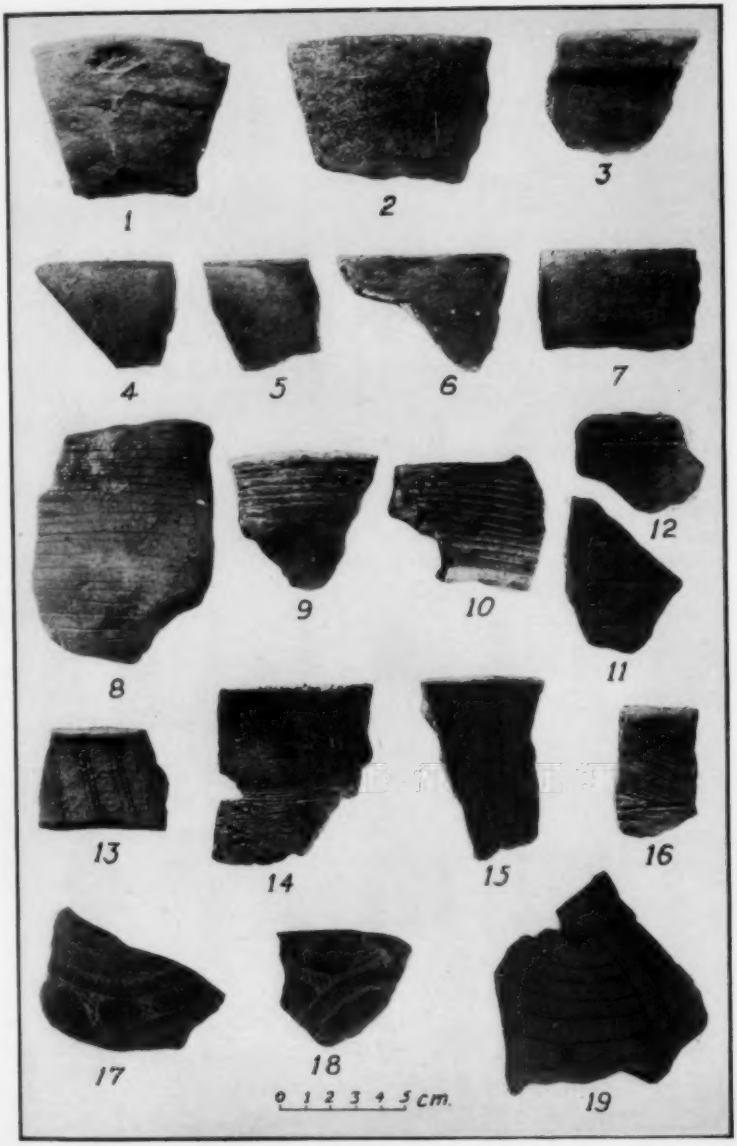
Bayou Goula Incised. Bayou Goula Incised (Pl. XIII, 10–16) is very similar to Fatherland Incised. The paste, form, surface treatment, design, and size of these two types are almost indistinguishable at the Bayou Goula site. The essential difference between the two is in the technique of decoration and the number of lines employed to carry out the curvilinear ornamental motif on the body. The number of lines range from four to seven and frequently a comb-like instrument has been used to produce them. However, the rim treatment of Bayou

[10] Ford, 1936, p. 57, Figs. c, e, and g.

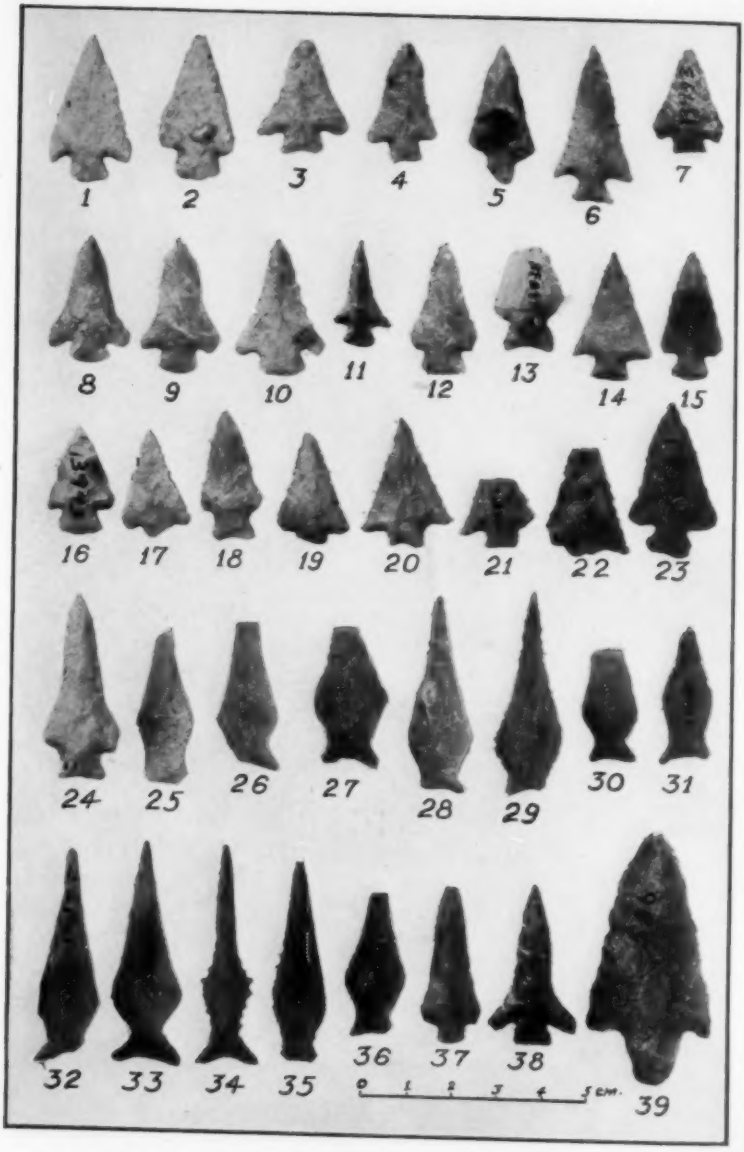


Natchezan sherds. Fatherland Incised: 1, 2, 4, 6, 7 and 9, Fatherland site; 3 and 5, Bayou Goula site; 8, Angola Farm site. Bayou Goula Incised: 10–16, Bayou Goula site. Natchez Incised: 17 and 18, Fatherland site; 19–21, Bayou Goula site.

Natchezan vessels. Fatherland Incised: 2 and 4, Fatherland site; 1, Angola Farm site. Addis Plain: 3, Bayou Goula site. Wilkinson Incised: 5, Angola Farm site. Pocahontas Punctated: 6, Angola Farm site. Manchac Incised: 7, Angola Farm site. Maddox Incised: 8, Angola Farm site. Pocahontas Plain: 9, Angola Farm site.



Natchezan sherds. Addis Plain: 1–3, Bayou Goula site. Fatherland Plain: 4–7, Bayou Goula site. Hardy Incised: 8–12, Bayou Goula site. Plaquemine Brushed: 13, Fatherland site; 14 and 15, Angola Farm site; 16, Bayou Goula site. Maddox Incised: 17 and 18, Angola Farm site. Wilkinson Incised: 19, Angola Farm site.



Chipped flint projectile points from Natchezan sites. 11, Angola Farm site; 39 Fatherland site; remainder, Bayou Goula site.

Goula Incised is indistinguishable from that of Fatherland Incised at the Bayou Goula site. The body decoration has much in common with Chickachae Combed and it is likely that these types are also related.

Chickachae Combed. Chickachae Combed was first described by Henry B. Collins, Jr., who obtained a number of sherds from the Choctaw towns of Chickachae and Ponta in northeastern Mississippi.[51] Both Collins and Ford have considered this pottery type indicative of the Choctaw complex.[52] It is generally sand tempered and has a body decoration of curvilinear or angular elements arranged in parallel bands, meanders, or scrolls. The curvilinear design is very similar to that appearing on Bayou Goula Incised, except the lines are smaller and the scrolls, meanders, and similar elements are narrower. The design has been produced both by incising and by combing with a denticulated tool. The latter technique is more common.

The type is present as a minority ware at the Fatherland site, but does not appear in other Natchezan sites mentioned in this paper. The presence of Chickachae Combed at the Fatherland site suggests direct or indirect contact with the Choctaw. The similarity between Bayou Goula Incised and Chickachae Combed suggests a cultural relationship between the two types. If such is the case, there must have been Choctaw influences about the Bayou Goula site. The problem is complicated by the possibilty that the Mugulasha or Quinipissa, co-occupants of the Bayogoula village, formerly were closely associated with the Choctaw.[53]

Natchez Incised. Another type, probably diagnostic of the historic period, has been called Natchez Incised (Pl. XIII, 17–21)[54] The paste, surface treatment, and shapes characteristic of this type are the same as those for Fatherland Plain, Fatherland Incised, and Bayou Goula Incised. The difference is in the decoration. The incised lines are so arranged as to form bands which carry out the design. In some instances, paired lines are used, in other instances only one line. The motifs include scrolls, meanders, and festoons. This type always occurs as a minority ware. At the Bayou Goula site, only bowl shapes have been found, whereas at the Fatherland site, flat bottomed jars also occurred.

Addis Plain. A common pottery type found at Natchezan sites has been called Addis Plain (Pl. XIV, 3; Pl. XV, 1–3). The common forms are straight and round-sided shallow bowls, barrel-shaped jars with slightly inslanting direct rims, and jars with constricted necks and straight or slightly flaring rims. All forms have rounded or flattened bottoms which are occasionally squared. This type has a coarser paste

[51] Collins, 1927. [52] Ford, 1936, pp. 40–49. [53] Cf. Swanton, 1911, p. 279.

[54] This type was established by Jesse D. Jennings, in the course of his recent work with historic sites in Mississippi which have not been considered in this paper.

than Fatherland Plain, and it is always tempered with particles of clay. Surface hardness ranges from 2 to 2.5 and the color varies from buffs to grays. The vessel surfaces are smooth, and there is no decoration. Addis Plain is also a common type in the Plaquemine period which preceded the Natchez culture.[55] In the Plaquemine period, however, Addis Plain is never accompanied by European trade articles and is associated with other types of pottery which serve to delimit this period.

Pocahontas Plain. Pocahontas Plain (Pl. XIV, 9) is similar to Addis Plain. It differs, however, in that it is always shell tempered. It is also a rather common type on some Plaquemine period sites, but, like Addis Plain, it persisted into historic times and became associated with a different cultural context.

Maddox Incised. The various forms of Maddox Incised (Pl. XIV, 8; Pl. XV, 17 and 18) are bottles, shallow bowls, and jars. The paste is of a rather fine texture, tempered with particles of clay. Surface hardnesses vary from 2 to 3, and the color ranges from buff to gray. Fractures in sherds are indicative of a coiling process of manufacture. Vessel surfaces are smooth and sometimes filmed with red paint on the exterior. The principal decorative technique is incising. The identifying motifs are small zones or bands filled with closely spaced cross-hatching lines or zones and bands outlined by hachured areas. These zones or bands may be associated with other decorative motifs made up of curvilinear incised lines, some of which are quite complicated. On bottles and jars, the decoration is confined to the vessel exterior. On bowls, however, the decoration is either outside or inside. Maddox Incised is a much more common type in the Caddo culture of northwest Louisiana, but it always seems to have been present as a minority ware among the groups which possessed the Natchezan culture type.

Pocahontas Punctated. Another pottery type common to both the Plaquemine and Natchezan cultures has been called Pocahontas Punctated (Pl. XIV, 6). This pottery was constructed by the coil method. The usual vessel forms are jars with constricted necks, round bottoms, and straight or flaring rims. The paste is medium fine in texture, rather soft (surface hardness 2 to 2.5), and is tempered with shell. The sections are often laminated. Colors range in buffs and grays for both exterior and interior, and the vessel surfaces are smooth but porous. Decoration is confined to the lower rim and upper shoulder area of the vessel exterior, and consists of trianguloid zones filled with punctate impressions. The apices of the triangles point downward. Frequently the zones are outlined by incised lines and connected at the

[55] Ford, Quimby and Beecher, N.D.

base by incised lines or bands filled with punctate impressions. This type has occurred as a minority ware at the Fatherland Plantation site, Angola Farm site, and the Bayou Goula site.

Wilkinson Incised. Wilkinson Incised (Pl. XIV, 5; Pl. XV, 19) is a minority ware which seems to be representative of the historic period. It has been found at the Angola Farm site, and is known to occur in historic Caddo sites of northwestern Louisiana. The vessel forms are jar-shaped, with flattened bottoms, highly constricted necks, and slightly flaring rims. The paste is of medium texture, shell tempered, and is usually buff colored. The surface is smooth and has a hardness of 2 to 2.5. Decoration is confined to the vessel exterior from lip to base, and consists of parallel, straight, and curved incised lines which form meanders and background plats.

Manchac Incised. Another pottery type common to the Plaquemine and Natchezan cultures is Manchac Incised (Pl. XIV, 7). As a minority ware, this type has been found at all three of the excavated historic sites. The usual vessel form is a round or flat-bottomed jar with a constricted neck and flaring rim. There are, however, occasional bowls. Characteristically, the paste is of medium texture, tempered with fine particles of clay, although shell tempering does occur. The color ranges in buffs and grays and the surface hardness is from 2 to 2.5. Decoration is always confined to the upper part of the vessel, and consists of line-filled triangular plats in an encircling band.

Hardy Incised. Hardy Incised (Pl. XV, 8–12) is also found in both the Plaquemine and Natchezan cultures, and it has been found at all three excavated historic sites. It is tempered with small particles of clay, has a medium texture, color ranges in buff and gray, and a surface hardness of 2 to 2.5. The vessel surfaces are smooth. The usual vessel forms are jars with round or flat bottoms, constricted necks, and straight or flaring rims. Several bowl variations, however, are also associated with this type. The decoration is confined to the rim and consists of horizontal, parallel, incised lines in a band around the vessel.

Plaquemine Brushed. Plaquemine Brushed (Pl. XV, 13–15) persisted into Natchez times. It is a clay tempered, medium textured pottery, colored in buffs and grays. The exterior surface is covered with brush impressions which have been carefully applied so that the brushing runs in bands which are oblique, horizontal, or vertical. Upon the rim there are frequently oblique brush impressions superimposed over a horizontal band. The vessels are all jars with round or flattened bottoms, constricted necks, and straight or flaring rims. Small amounts of Plaquemine Brushed have been found at all three of the excavated early historic sites.

To summarize the ceramic data: the Natchezan pottery complex is made up of an association of types diagnostic of the Natchezan culture types, although individually any one of these could be representative of Caddo, Natchezan, Choctaw, or Plaquemine. The only types which,

TABLE I

COMPARISON OF POTTERY BY TYPES

	Site					
	Laborde	*Ring Place*	*Natchez Fort*	*Bayou Goula*	*Father-land*	*Angola Farm*
	Tribe					
	Avoyel	*Pre-Contact Natchez*	*Natchez et al.*	*Bayogoula Mugulasha Taensa Houma*	*Natchez*	*Houma Tunica*
*Fatherland Incised	X	X	X	X	X	X
Three line decoration majority	X	X			X	X
Four line decoration majority			X	X		
Bowl forms	X	X	X	X	X	X
Jar forms		X			X	
Bottle forms		X			X	
Platform bases		X			X	
*Bayou Goula Incised				X		
*Chickachae Combed					X	
Angular design only					X	
*Fatherland Plain	X	?	?	X	X	X
*Natchez Incised	?	?	?	X	X	X
Bowl forms				X	X	?
Jar forms					X	
Cameo Ware					X	
Polished and Incised plate					X	
Red filmed "teapot"					X	
Addis Plain		?	?	X	X	X
Pocahontas Plain	?	?	?	X	X	X
Maddox Incised		?	?	X	X	X
Pocahontas Punctated		?	?	X		X
Wilkinson Incised						X
Manchac Incised		?	?	X	X	X
Hardy Incised		?	?	X	X	X
Plaquemine Brushed		?	?	X	X	X

* Probably diagnostic Natchezan types in this combination.

outside of their context, might be considered individually diagnostic of the Natchezan culture type are Fatherland Incised, Fatherland Plain, and perhaps Bayou Goula Incised and Chickachae Combed but even these appear as harbingers of Natchezan influence in other early historic cultures. A comparison, by site, of the decorated types has been presented in Table I.

Pipes

The French contemporaries of the Muskhogean peoples did not describe their smoking pipes in any detail, although Dumont stated

that the Natchez were inveterate smokers and that they inhaled a great deal. Dumont also mentioned that the Natchez peace calumet had a stem four feet long at the end of which was a pipe made of stone. Pipes, other than trade pieces manufactured in Europe, were not found in the course of archaeological investigations at the Fatherland Plantation site. The Bayou Goula site, however, produced clay elbow pipes, (Pl. XVII, 8–9, 11–14). At Angola Farm, no pipes of aboriginal manufacture were found, although there were white clay trade pipes with short flat spurs.

Other Artifacts

With the exception of the Laborde site, no stone celts or axes have been excavated, but Du Pratz stated that the Natchez manufactured ax blades of stone by means of a grinding process. Du Pratz would have us believe that these stone axes were fastened to a cleft in a wood handle by means of a hole the size of one's finger, which was drilled into the head of the ax. Swanton, however, cites Holmes' observation that this type of ax has not been found in North America[56] and certainly the archaeological evidence from known Natchezan sites does not suggest the presence of celts or axes as a common occurrence.

A ground stone discoidal, with convex faces and a small central perforation, from the Fatherland site is perhaps some confirmation of Dumont's description of the Natchez game of chunkey.[57]

According to Du Pratz, the Natchez bows and arrows were made of wood and the arrow points of cane splinters, fire hardened wood, garfish scales, and bone.[58] In this area artifacts of wood would not be preserved in the sites, although bone, if present, should have been found in the excavations. None was found, however, although garfish scales were found at both Fatherland Plantation and Bayou Goula. Two rather large stemmed and barbed chipped flint projectile points (Pl. XVI, 39) were found on the surface of the Fatherland village site.

Ethnohistorical sources make no mention of arrow points among the Bayogoula, but a number of chipped flint projectile points were excavated from the Bayou Goula site in the fills of grave pits and mound mantles. There were two types of points, both small, thin, and of excellent execution: the first type (Pl. XVI, 25 and 26), is shaped somewhat like a fish; the second (Pl. XVI, 1–7, 12–24, 37) consists of triangular points. A variant of the triangular type (Pl. XVI, 8–11, 38) has eared shoulders which give it somewhat the appearance of a fir tree. This fir tree variant has been recorded from earlier horizons in Louisiana and also was found in the excavations at Angola Farm.

[56] Swanton, 1911, p. 58. [57] *Ibid.*, p. 90. [58] *Ibid.*, p. 58.

Flint knives were not found in any of the archaeological explorations, and it is probable that they were not used at all, for Du Pratz stated that prior to the introduction of iron, the Natchez used knives made of cane splinters.[59] Those of course would perish rapidly and the chances of finding any preserved specimen would be slight.

Two quartz crystals, one of which was grooved at the top, were found at the Bayou Goula site (Pl. XVII, 5 and 6) and another comes from the Fatherland site. Gravier claimed that there were rock crystals in the Natchez temple,[60] but no one has mentioned them in connection with the Bayogoula. At the Fatherland site fragments of sheet mica and lumps of galena (Pl. XVII, 15 and 16) were also found in the burial mound.

The stone effigy excavated from the Fatherland burial mound[61] may belong to the class of "little stone figures" which Gravier saw in a coffer within a Natchez temple.[62] In speaking of the Bayogoula, Iberville mentioned that they carved figures of beasts. Although no carvings were found at the Bayou Goula site, a fragmentary clay figurine (Pl. XVII, 10) was excavated.

Large, thick shell beads and small, circular shell gorgets (Pl. XVII, 1–4) were present with the burials at Angola Farm. None was found at the Fatherland site, although Dumont stated that the Natchez made beautiful circular and oval plates or gorgets of shell. Dumont also recorded that the Natchez women ornamented their ears with shell pins, but none were found at any of the excavated sites.

ETHNOLOGICAL SUMMARY

From an ethnological point of view, the Natchezan culture type would include at least such tribes as the Natchez, Houma, Bayogoula, Mugulasha, and some Tunica. All but the last mentioned are tribes which spoke Muskhogean dialects. Other Muskhogean tribes which probably should be included in the Natchez culture group are the Taensa and Avoyel. As described by French contemporaries this culture was as follows:[63] Agriculture was the basic economy and corn was the most important crop, although it and other cultivated plants were supplemented by the products of hunting, fishing and food gathering. The importance of the economic system was reflected in the ritual, the thirteen-month calendrical system, and in many other aspects of traditional behavior.

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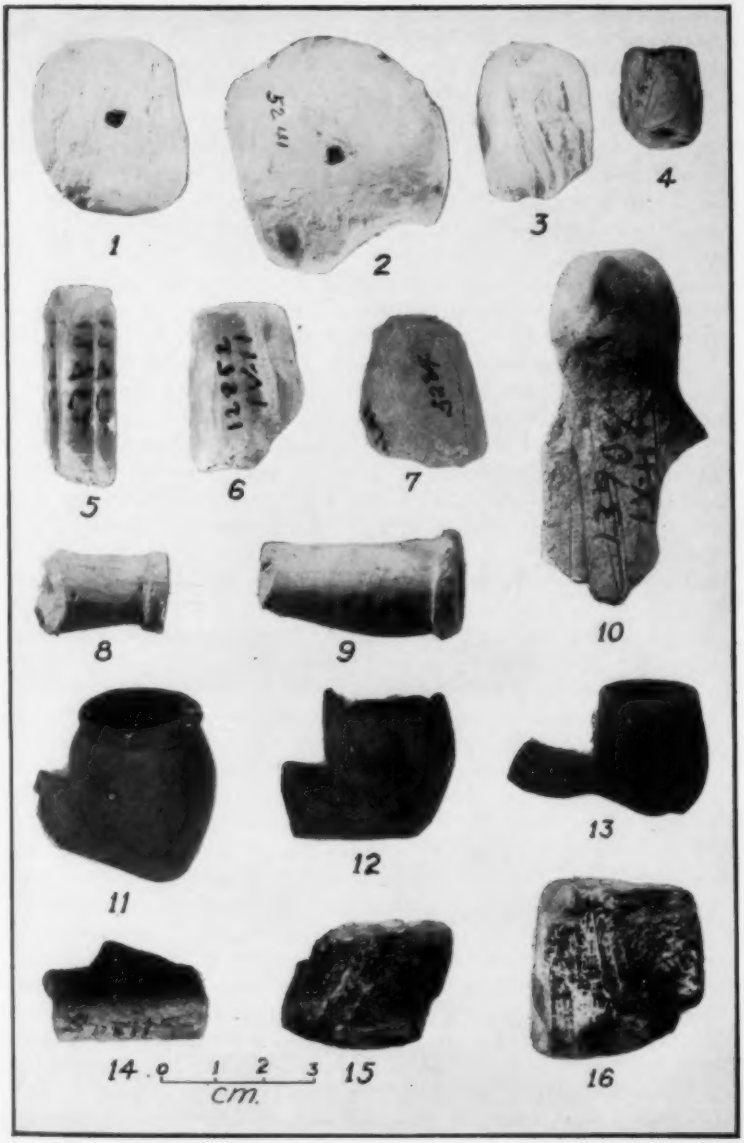
[59] *Ibid.*, p. 58. [60] *Ibid.*, p. 158.

[61] Ford, 1936, p. 64 and Fig. 11. [62] Swanton, 1911, p. 159.

[63] All of the following ethnological information has been taken from Swanton, 1911, pp. 45–186 and 274–281.



Natchezan artifacts. Shell gorgets: 1 and 2, Angola Farm site. Shell beads: 3 and 4, Angola Farm site. Grooved quartz crystal: 5, Bayou Goula site. Plain quartz crystal: 6, Bayou Goula site; 7, Fatherland site. Clay figurine: 10, Bayou Goula site. Clay pipe stems and bowls: 8–9, 11–14, Bayou Goula site. Lumps of galena: 15 and 16, Fatherland site.

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The people lived a sedentary life in villages advantageously located for purposes of protection, agriculture, and travel. Frequently, the villages were fortified with circular or rectangular stockades. Their windowless houses were made of saplings, wattle and daub, thatch, and matting; the roofs were dome shaped and the foundations rectangular. Some houses had porticos. Larger, though similar, structures were used for temples and chief's houses and these were raised on mounds. In general the temples and chief's houses were better made and more ornate. The sacred granary was box-like with an opening at the top which could be reached by a ladder. It was raised off the ground and supported on four posts. Into this granary every year went the first fruits of each family's agricultural endeavors. The village configuration of houses, mounds, temples, and other structures included a plaza which, among other things, contained a gaming area. Other conspicuous features near or in the village were the platforms upon which the dead were placed to await burial or removal to the temple.

Furniture included three- or four-legged stools, platform beds inside the houses, and cane mats. The Chief's bed was more ornate and painted with many figures on the four posts. His mattress was filled with goose feathers instead of with Spanish moss. Bear and bison skins, used for blankets, were sometimes painted. Quartz crystals and effigies were observed in the houses and temples.

Weapons of the Natchezan peoples were bows and arrows, knives, and ball-headed clubs with curved blades. All of these were made of wood; even the arrows had sharpened points of cane, or fire-hardened wood. Bone, however, was used in some instances. Household utensils consisted of pottery vessels, bison horn spoons, wooden mortars and pestles, baskets woven of cane, hafted flint skin-scrapers, bone awls, bison bone digging tools, stone celts or axes, and a hand drill for producing fire by friction. Other implements were nets for catching fish, digging sticks, and incised sticks which were used to warn an enemy that the Natchez were about to raid them.

They manufactured pottery vessels which were delicate and pleasing in execution and sometimes colored.

Common forms of water conveyance were the dugout canoe, or pirogue, with a long paddle, and a raft made of bundles of cane. A litter or palanquin was used ceremonially to transport chiefs. It was constructed of four posts to form a square, had a seat in the center, and was provided with four handles for carrying.

Other objects possessed by the Natchezan peoples were elbow pipes of stone, cradleboards, stone discoidals, drums made by stretching a skin membrane over a pottery vessel, rattles, small shell gorgets,

bone bracelets, pearl necklaces, shell pin ear ornaments, painted bison skin robes, bison skin robes decorated with dyed porcupine quills, ribbons and leg bands of spun bison wool or spun opossum fur, and netted mantles woven of bast fibre and covered with feathers.

In winter, the Natchezan peoples wore skin leggings, deer skin skirts, shirts, and bison robes. In summer, the women wore skirts only and the men wore breech clouts. Both sexes wore feathers, tatooed and painted their bodies and faces, and blackened their teeth. Heads were deformed by means of cradleboard binding.

The dead were placed on platforms raised on posts and, after a certain amount of decomposition, were interred or placed in containers within the temple. Burials were wrapped in mats or placed in chests.

Domesticated animals were the dog and the chicken, the latter introduced by Europeans. Among the Old World introductions in the early historic period were flintlock guns, brass kettles, iron knives, axes, glass bottles, pottery, cloth, bells, bracelets, ear ornaments, polychrome and monochrome glass beads, pipes, jews harps, and vermilion. These trade artifacts were apparently well integrated into the Natchezan culture of the early historic period and consequently should be considered as a part of their material possessions. Because they have been described elsewhere,[64] the details of the trade objects have been omitted from this discussion.

ARCHAEOLOGICAL SUMMARY

Viewing the archaeological evidence only, the Natchezan complex would be described as follows: the villages were situated along rivers and bayous, sometimes fortified with palisades, and the houses had rectangular ground plans as manifested by wall trenches or postmolds. Some of these houses had central partitions. Pyramidal mounds were used as substructures and the configuration of mound, houses, and palisades, included the concept of a central plaza.

The dead were buried in pits either in cemeteries or intrusive into mounds. Some burials had a low mound erected over them. In some cases, burial furniture was abundant, in other instances such offerings were at a minimum or absent. The skeletons were flexed, in bundles, or extended, and a few burials were in wooden chests.

The culture was probably based upon an agricultural economy, for although there is little direct evidence, the sedentary existence implied by the village plan would require a horticultural base. One charred bean was found in a pit at Bayou Goula. Pottery was well made and consisted of several styles, of which the most common decorated type was Father-

[64] Quimby, 1939; 1942.

land Incised. Projectile points of chipped flint were delicate and thin. One style was fish shaped, the other, basically triangular. A variant of the triangular style had eared shoulders, which caused the modified triangle to look like the outline of a fir tree. Pipes were of the elbow variety and made of clay. Other objects were grooved and ungrooved quartz crystals, stone effigies, clay figurines, and lumps of galena.

That this culture persisted into the early historic period is manifested by the presence of European objects such as flintlock guns, brass kettles, ornaments, knives, beads and the like.

SUMMARY AND CONCLUSIONS

The correlation between the ethnological evidence and the archaeological evidence leaves much to be desired. The reason for this lack of correlation is threefold. In the first place, many of the traits described by contemporary French observers are not suited for comparison with archaeological data. Secondly, the archaeological data are incomplete; they do not represent complete complexes by site. In the third place, there was considerable shifting about by the early historic tribes in the lower Mississippi Valley. There was widespread trade and communication among the Muskhogean and Caddoan tribes as well as intertribal and intervillage wars. With the Bayogoula, Mugulasha, Houma, and Taensa all occupying the same village in the course of seven years it would seem useless to hope for archaeological data sufficient to differentiate such closely related peoples. Further, it seems that all tribes had captives or refugees from other tribes dwelling among them, and it would not seem improbable to find Caddo potters at work in a Tunica or Houma village.

All of these factors, therefore, lessen the chances of directly correlating archaeological and ethnological data. There is, nonetheless, enough evidence to suggest that the Natchezan culture was probably possessed by such Muskhogean speaking ethnic units as the Natchez, Bayogoula, Mugulasha, Houma, Taensa, and Avoyel and some non-Muskhogean Tunica. There undoubtedly was direct contact with other Muskhogean tribes nearby, as well as with the more distant Choctaw to the northeast and some Caddoan peoples to the northwest.

The tabular summaries of the archaeological data, Tables 1 and 2, suggests that there are three known focal points for the Natchezan culture which probably correspond to tribal divisions within historic times. The Natchez focus would include the Fatherland site, Natchez Fort, the Ring cemetery, and the Glass site, all but one of which are in Mississippi. The most obvious traits of this focus are Fatherland Incised pottery with a three-line decoration and volutes and the pres-

TABLE 2

COMPARISON OF ARCHAEOLOGICAL TRAITS

	SITE		
	Bayou Goula	*Fatherland*	*Angola Farm*
	TRIBE		
	Bayogoula Mugulasha	*Natchez*	*Houma Tunica*
Use of pyramidal mounds	X	X	
Low burial mound		X	
Intrusive burial pits in mound	X		
Cemetery burial pits			X
Abundant refuse pits	X		
Post-built structures on mound summit	X		
Rectangular house trenches	X		
Middle house partition trench	X		
Palisade trench	X		
Plaza	X	X	
Secondary bundle burials	X	X	
Extended primary burials		X	X
Flexed burials	X	X	
Burials in wooden chests	X	X	X
Burial furniture abundant		X	X
Burial furniture rare or absent	X		
Early historic trade objects present	X	X	X
Pottery present (see Table 1)	X	X	X
Clay elbow pipes	X		
Garfish scale points	X	X	
Large ovate, stemmed flint points		X	
Fish shaped flint points	X		
Triangular stemmed points	X		
Triangular eared or "fir tree" points	X		X
Perforated discoidal stone		X	
Quartz crystals	X	X	
Grooved quartz crystal	X		
Effigies of stone or fired clay	X	X	
Thick shell beads			X
Small shell gorgets			X
Charred bean	X		

ence of platform bases as well as bottle and jar shapes. Perhaps Natchez Incised jars also should be included. The Bayou Goula focus would include the Bayou Goula site, and small sites in Avoyelles Parish and in southern Louisiana along Bayou Des Allemands. The tribes inhabiting these sites would have been the Bayogoula, Mugulasha, and likely Houma, Taensa, and Avoyel as well as some Natchez. The most obvious characteristics of this focus are Fatherland Incised pottery, exclusively bowl forms, and generally design elements composed of four lines. Other possible criteria are Bayou Goula Incised bowls, specialized types of chipped projectile points, and rectangular houses outlined by wall trenches. The Angola Farm cemetery and any related components would constitute the third focus. It seems to have been influenced by historic Caddo tribes whose archaeological remnants have been found

in northwest Louisiana; its tribal affiliations would lie with Tunica, Houma, and perhaps Taensa and Avoyel.

Archaeologically, the Natchezan complex is a particular association of traits, some of which were characteristically Natchezan, others were persistent traits from the earlier Plaquemine period, and still others were Caddoan and perhaps Choctaw. Outside of their unique Natchezan context all of these traits probably could be found in other times and places. There is little doubt that in this area the Plaquemine culture was earliest. Pure Plaquemine period sites are always prehistoric: there is no evidence of European contact, and Plaquemine artifacts at the Bayou Goula site are beneath Natchezan types. Typological and stratigraphical considerations, therefore, suggest that the main stream of Natchezan ancestry flowed from the preceding Plaquemine culture. At present, however, there does not seem to be a satisfactory explanation for the origin of the Natchezan as a complete cultural complex. It may, perhaps, be significant that the two northernmost sites of this complex do not contain evidence of European contact.

Louisiana State Archaeological Survey
Baton Rouge, Louisiana
March, 1941

POTTERY FROM THE OZARK BLUFF SHELTERS[1]

S. C. Dellinger and S. D. Dickinson

THE Ozark Uplift of northwest Arkansas and southwest Missouri has been a fertile field for archaeological investigation. Natural conditions have greatly facilitated research here, for despite the humidity of the region, there are numerous dry shelters or caves formed by the weathering of shale beds beneath limestone strata in bluffs along White River, its tributaries, and the Cowskin River. Debris, burials, and pictographs show that the Indians had used the shelters as combined homes, cemeteries, and places for ceremonials. In contrast to village sites in the lowlands of Arkansas, the bluff shelters afford more than a fragmentary picture of Indian life. Here, the burials are complemented by remains fortuitously preserved through absence of moisture, and the entire cave floor is comparable to the middens of the lowlands. The archaeological materials illustrate the complete life cycle of the aborigines. Cradleboards[2] and burial wrappings, foodstuff[3] and human feces[4] all contribute to a reconstruction of Bluff-Dweller life.

Successive investigations of the shelters have revealed occupancy by primitive if not ancient people. While exploring various caverns in 1903 and subsequent years, Peabody and Moorehead found artifacts which indicated a low degree of culture. At Jacobs Cavern in McDonald County, Missouri, stalagmitic breccia enclosing camp debris and ashes caused them to believe that the culture was of "considerable antiquity."[5]

In 1922 and 1923, M. R. Harrington, under the auspices of the Heye Foundation, conducted excavations at various shelters. Along the upper White River he found evidence of but a single culture to which he gave the name, Ozark Bluff-Dweller. Later, at bluffs along the Cowskin in Missouri he discovered remains of another people superimposed on the Bluff-Dweller. This culture he termed the Top-Layer.[6]

Excavations directed by the senior author for the University of Arkansas Museum from 1925 to 1938 confirmed this sequence of cultures. New data, however, indicated that the Top-Layer remains were more extensive than Harrington had supposed. In some shelters, both cultures were encountered, and in others, either the Bluff-Dweller or the Top-Layer.

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[1] Research paper Number 715, Journal Series of the University of Arkansas. Prepared with the assistance of Work Projects Administration Official Project No. 665-63-3-170. [2] Dellinger, 1936, pp. 197–214. Bibliography, see pp. 311–318 of this journal.

[3] Gilmore, 1932, p. 16. [4] Wakefield and Dellinger, 1936, pp. 1412–1418.

[5] Moorehead, 1931, p. 24. [6] Harrington, M. R., 1924, p. 4.

The Bluff-Dwellers were hunters and agriculturalists. Though they grew corn, sunflowers, pumpkins, beans, and squash, they do not appear to have cultivated tobacco. In studying ethnobotanical material from the shelters, Gilmore found no evidence of tobacco.[7] An earthenware pipe, however, has been found in a shelter. Whether it belonged to the Bluff-Dwellers or to the later culture cannot be determined because of the fallen rocks and the irregularity of the cave floor where it was discovered. Hunting was done principally with the atlatl. The earlier people had crudely chipped flint hatchets instead of celts and grooved axes. Blankets were woven of wrapped rabbit fur cord, comparable to those of Basketmaker II.[8] Throughout the period, bags, baskets, and bark vessels were used, but pottery appeared only in the final stage of the culture.

This pottery generally occurred in the uppermost levels of the Bluff-Dweller deposits, though at Curiosity Bluffs in Washington County, Arkansas, we found some sherds thirty-seven inches below the surface. According to both Harrington's and our observations, the ware was sometimes associated with large projectile points characteristic of the Bluff-Dweller culture.[9] Harrington also noted that the Bluff-Dweller earthenware was tempered with sand, crushed rock, and rarely shell, whereas the Top-Layer pottery usually had shell tempering, and was strewn on the shelter floors or immediately below the surface.[10]

Harrington also differentiated the Top-Layer culture from that of the Bluff-Dwellers by their use of small triangular arrow points, celts, grooved shaft-smoothers, "duck bill" scrapers, double pointed knives, and L-shaped catlinite pipes found near the shelters.[11] Our excavations have also yielded two elbow pipes of earthenware which unquestionably belong to the Top-Layer period.

The exact place of the Ozark rock shelter peoples in the culture sequence of the Mississippi Valley is a matter of considerable importance. Whether they were antecedent or peripheral to the more highly developed groups has long been a matter of speculation. And now as archaeological research in the South is progressing, the anomaly becomes more pronounced. Since it has been possible to work out the chronological relationships of other Arkansas cultures through stratigraphic studies of pottery, we attempt to solve the shelter problem by the same means. In self defense, we admit the limitations of ceramics as a definitive culture trait.

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[7] Gilmore, 1930, p. 91. [8] Sayles, 1935, Table 10.
[9] Harrington, M. R., 1924, p. 12. [10] *Ibid.* [11] *Ibid.*, p. 19.

POTTERY OF THE BLUFF-DWELLERS

Concerning the grit tempered pottery, Harrington states, "the ware suggests somewhat the coarser variety of pottery seen in the Caddo region of southwestern Arkansas, but lacks its decoration."[12] He was correct, considering the time of his work, for the prehistoric ceramic complexes of southern Arkansas had not yet been distinguished from the Caddo, whose pottery derived certain features from them.

Until 1936 the presence of Marksville, Deasonville, and Coles Creek wares were unknown in Arkansas.[13] Since then, diligent study of potsherds has revealed Marksville and Coles Creek pottery below the Caddoan in southwest Arkansas;[14] Marksville, Coles Creek, and Woodland on Middle Mississippian sites in northeastern Arkansas;[15] Marksville, Deasonville, and Coles Creek underlying the historic ware of southeastern Arkansas;[16] and possibly Deasonville and Coles Creek in the Arkansas River Valley.[17]

As would be expected from this distribution, there was also a manifestation of these complexes in northwestern Arkansas. In fact, most potsherds in our collections from the final stage of the Bluff-Dweller culture are Marksville. With the exception of a specimen which appears to be Woodland, the others are Coles Creek. These sherds are quite similar to those found elsewhere in the state.

The predominant colors of the paste core are Deep Mouse Gray, Deep Grayish Olive, Drab, and Fawn.[18] The texture is lumpy, and sometimes has a tendency to scale. Grit appears to have been the predominant aplastic, though occasional particles of limestone, and more rarely shell have been observed. The potsherds have an average hardness of 3.5, which is somewhat higher than that of similar specimens from other areas in Arkansas. This may be explained, however, by the fact that the fragments had been better preserved in the shelters than those in middens in the Gulf Coastal Plain.

Irregular firing resulted in a mottled exterior appearance, the principal colors being Wood Brown, Army Brown, Avellaneous, Drab, and Deep Mouse Gray.[19] Sometimes the sherds have a crackled surface, and bear narrow elongated marks of the potter's smoothing tool.

No complete or restorable vessels were found by us. It has been possible, however, to postulate the original shapes by studying the rim and basal fragments. Rim profiles are illustrated in Fig. 28*a*. The predom-

[12] Harrington, M. R., 1924, p. 12. [13] Lemley, 1936; Dickinson, 1936, pp. 25–69.
[14] Dickinson and Lemley, 1939, pp. 139–189.
[15] Dellinger and Dickinson, 1940, pp. 133–147.
[16] Lemley and Dickinson, 1937, pp. 11–47.
[17] Dickinson and Dellinger, 1940, p. 96. [18] Ridgway, 1912. [19] *Ibid.*

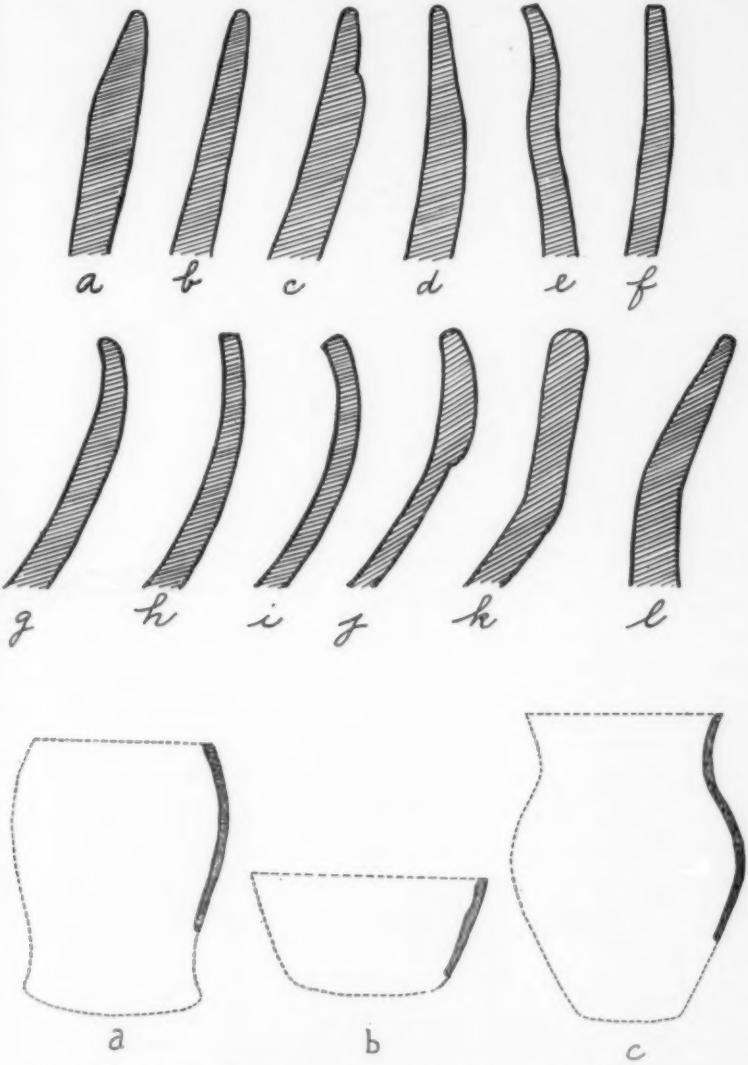


FIG. 28.—*a*, above, rim sherds from Bluff-Dweller deposits. *b*, below, vessel shapes as restored from sherds.

inant forms, like the Marksville and Coles Creek of south Arkansas are: a beaker with incurving rim; an urn having an everted rim; and a bowl with vertical or curving walls (Fig. 28*b*). Body sherds were from 7 to 18 mm. thick. The potsherds show that the vessels had constricted round or rectangular bases like the Marksville and Coles Creek ware from the valleys of the Bayou Macon, Ouachita, Little Missouri, and Poteau Rivers. Moreover, the rectangular bases have slight extensions at the corners, as do specimens from the above mentioned regions.

A number of the bases bear impressions of basketry (Pl. XVIII, *a–f*). The common Bluff-Dweller weaves—twilled, wicker, and coiled—are represented. The specimens are closely related to certain examples of pre-Caddoan ware from southwestern Arkansas. The University of Arkansas Museum has obtained bases having coiled and wicker imprints from a Coles Creek midden at Strickland Island in Scott County (Pl. XVIII, *g–j*), and wicker impressed bases from both Marksville and Coles Creek sites in Hot Spring and Garland Counties (Pl. XIX, *a–n*).

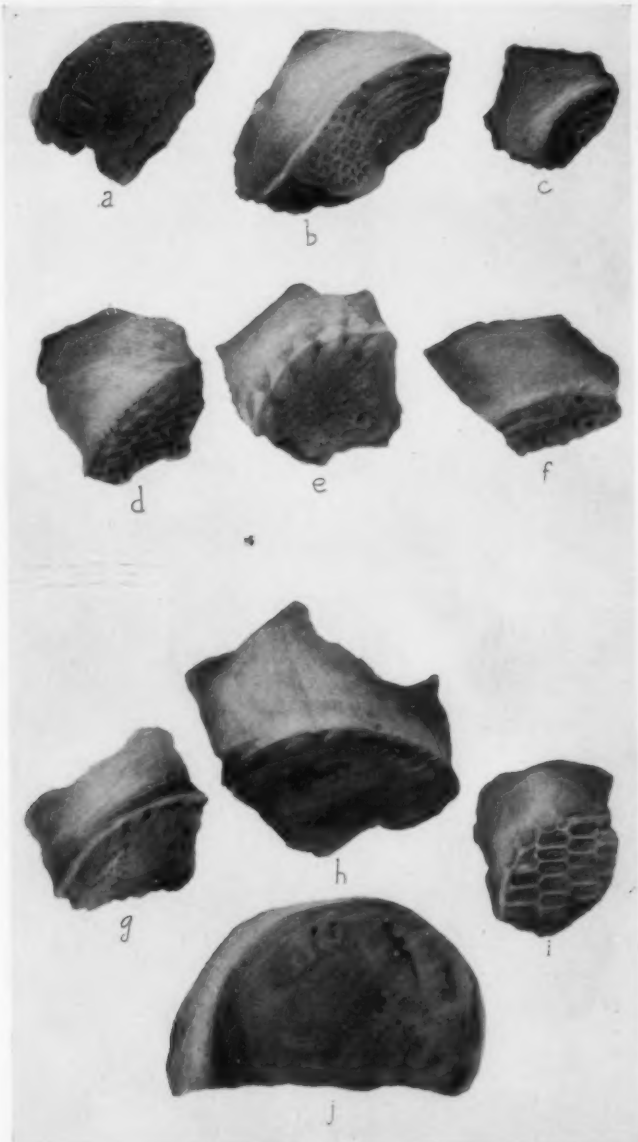
As a clue to the manufacture of the pottery, these bases are significant. Holmes states: "That baskets were used in the East as molds is attested by historical evidence, as may be seen by reference to the citation from Hunter, previously made. I can but regard it as remarkable, however, that in handling thousands of specimens of this pottery, I have found no vase the imprints on which fully warrant the statement that a basket was employed as a mold, or even as a support for the incipient clay form. Many assertions to the contrary have been made, probably through misapprehension of the nature of the markings observed. On fragments of imperfectly preserved vessels distinctions cannot readily be drawn between disconnected impressions made by the partial application of pliable fabrics or textile covered stamps and the systematically connected imprintings made by the surface of a basket."[20]

In more recent work, Ford describes Deasonville pottery, Type 11; 82, as having coiled basket imprints on its exterior surface. As his sherds were small and from the body of vessels, he was "unable to determine whether the impressions were applied by forming the vessel in a coiled basket or by application of the impressions of a sort of stamp."[21] Bases with basketry imprints have also been reported from Le Flore County, Oklahoma.[22]

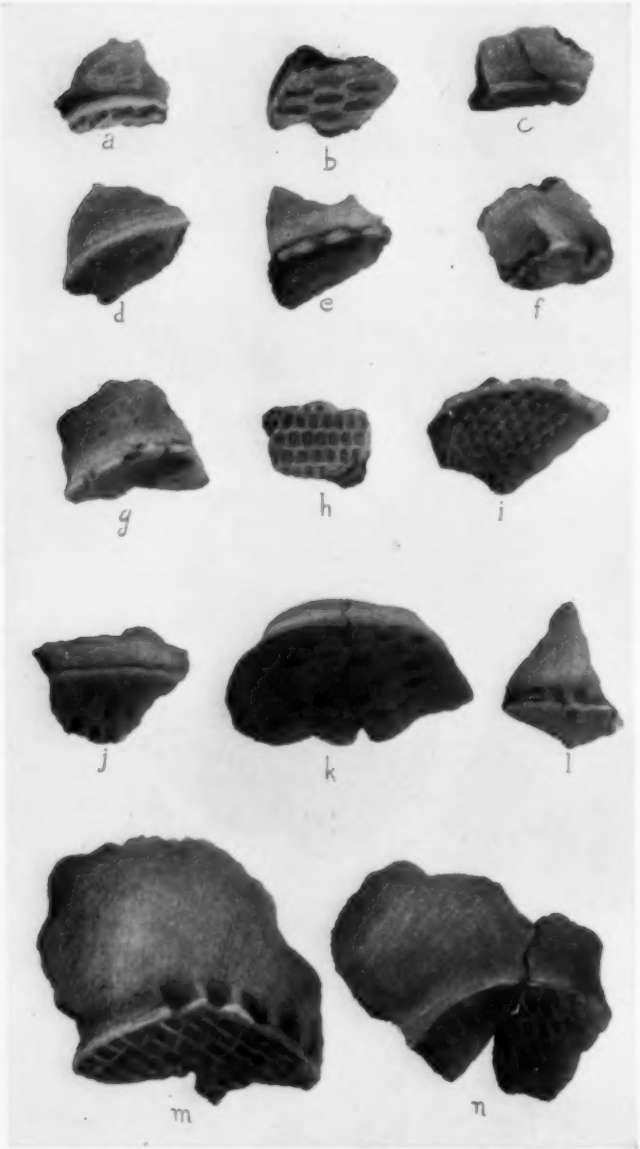
The uniformity of the impressions and their even distribution on the bases leave no doubt that baskets were used as supports during the coiling of the Arkansas pottery. No imprints have been observed on vessel walls, consequently, there is no evidence that baskets served as molds.

[20] Holmes, 1903, pp. 69–71. [21] Ford, 1936, p. 146.

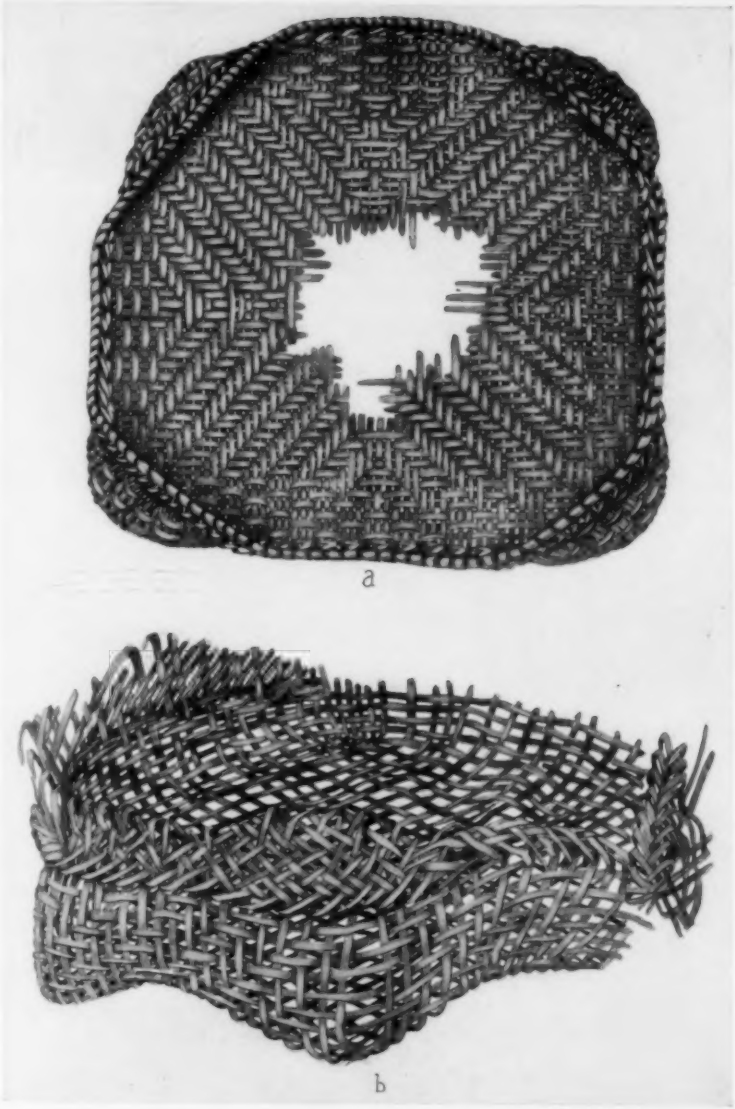
[22] Newkumet, 1940, p. 6.



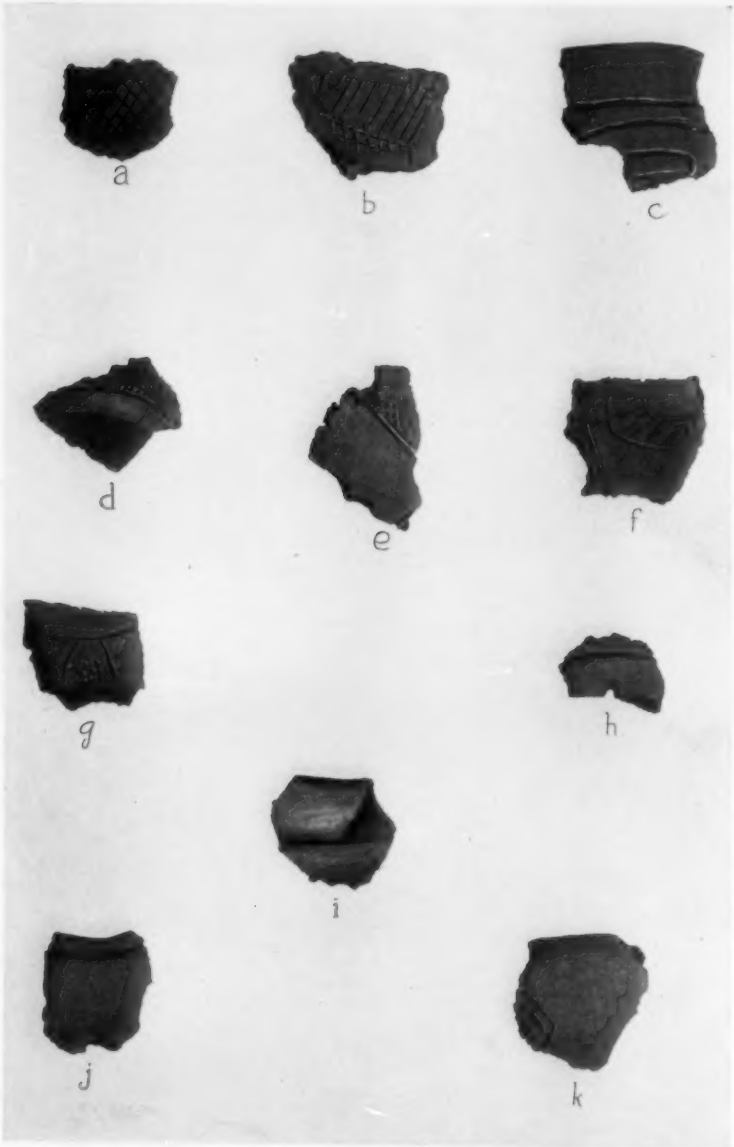
Vessel bases bearing basketry imprints: *a–f*, Ozark bluff shelters, northwest Arkansas; *g–j*, Strickland Island, Scott County, Arkansas.



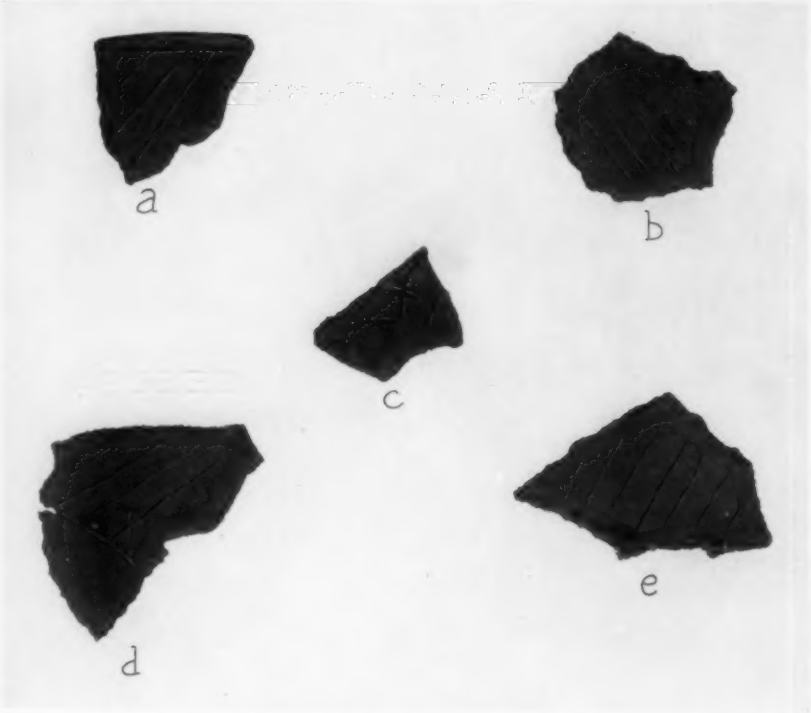
Vessel bases bearing basketry imprints, Ouachita River, Hot Spring and Garland Counties, Arkansas.



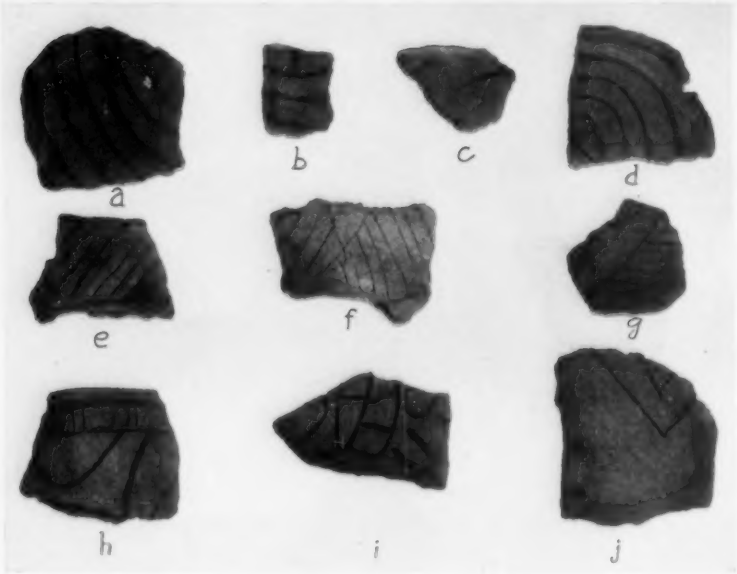
Wicker baskets, Arkansas: *a*, Cob Cave, Newton County; *b*, Indian Creek shelter, Benton County.

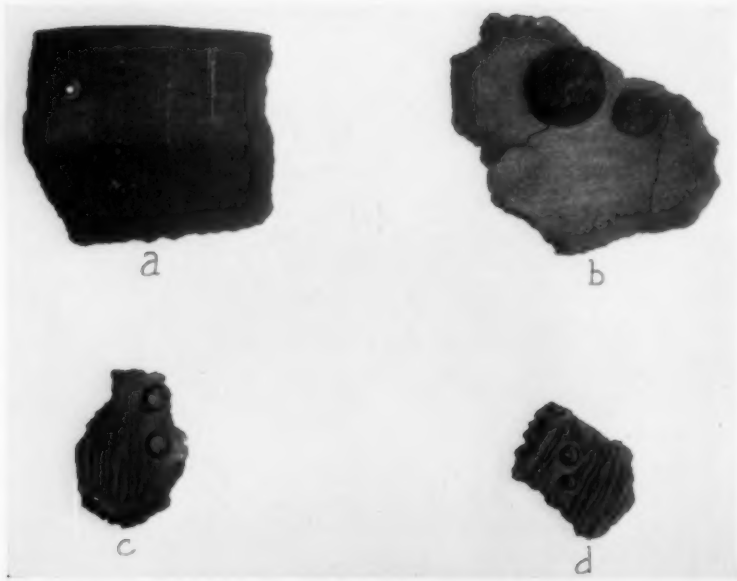


Decorated Bluff-Dweller potsherds.

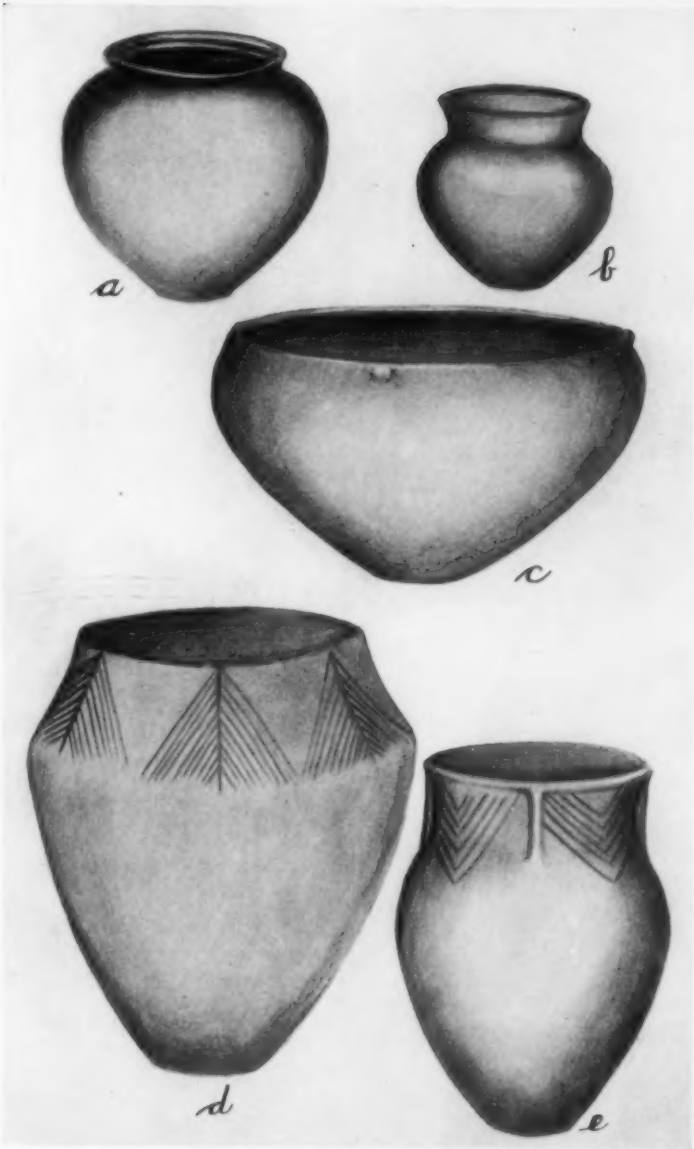


Decorated Bluff-Dweller potsherds.



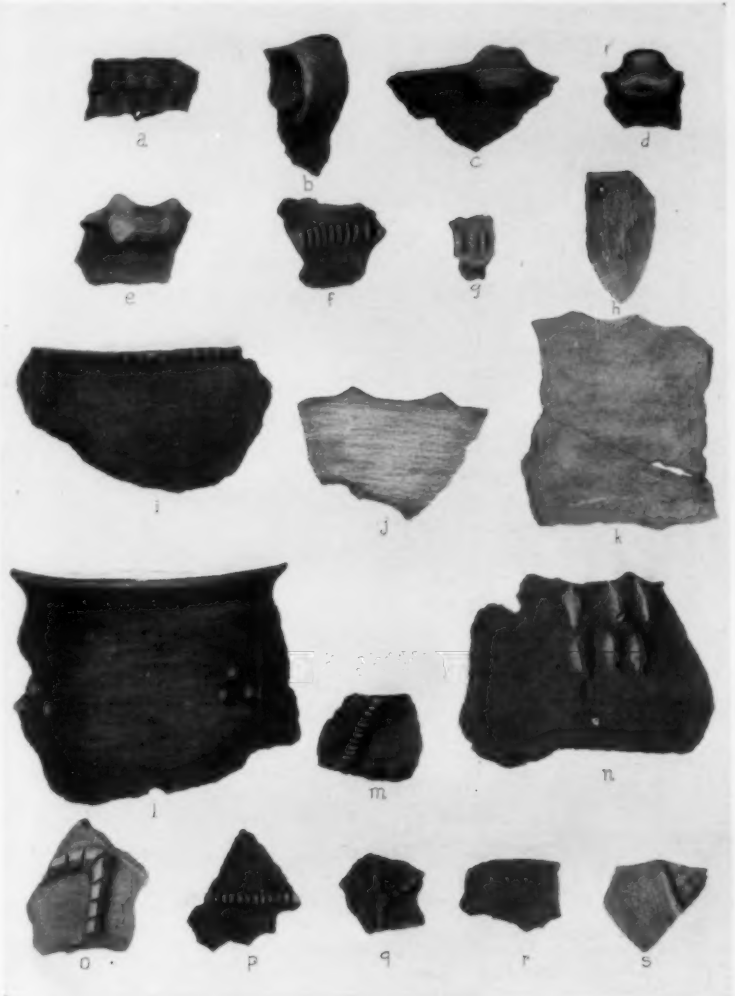


Potsherds, Arkansas. Fig. 1, above, Strickland Island, Scott County. Fig. 2, below, *a–c*, bluff shelters; *d*, Bell Plantation, Mississippi County.

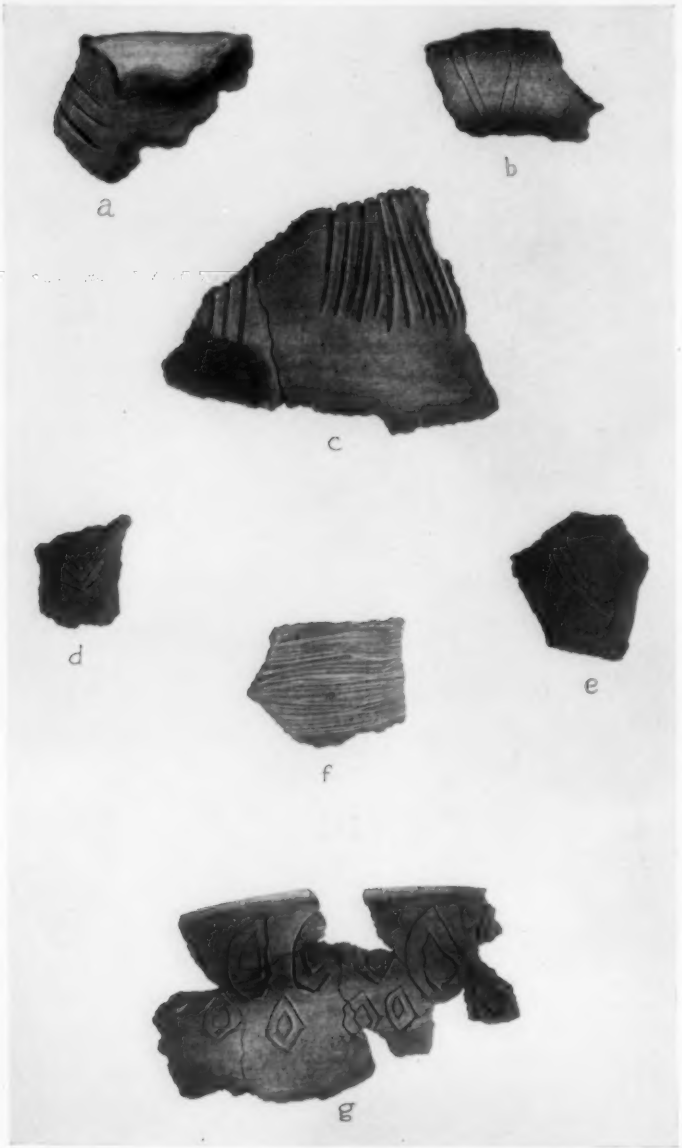


Vessels of the Top-Layer culture.

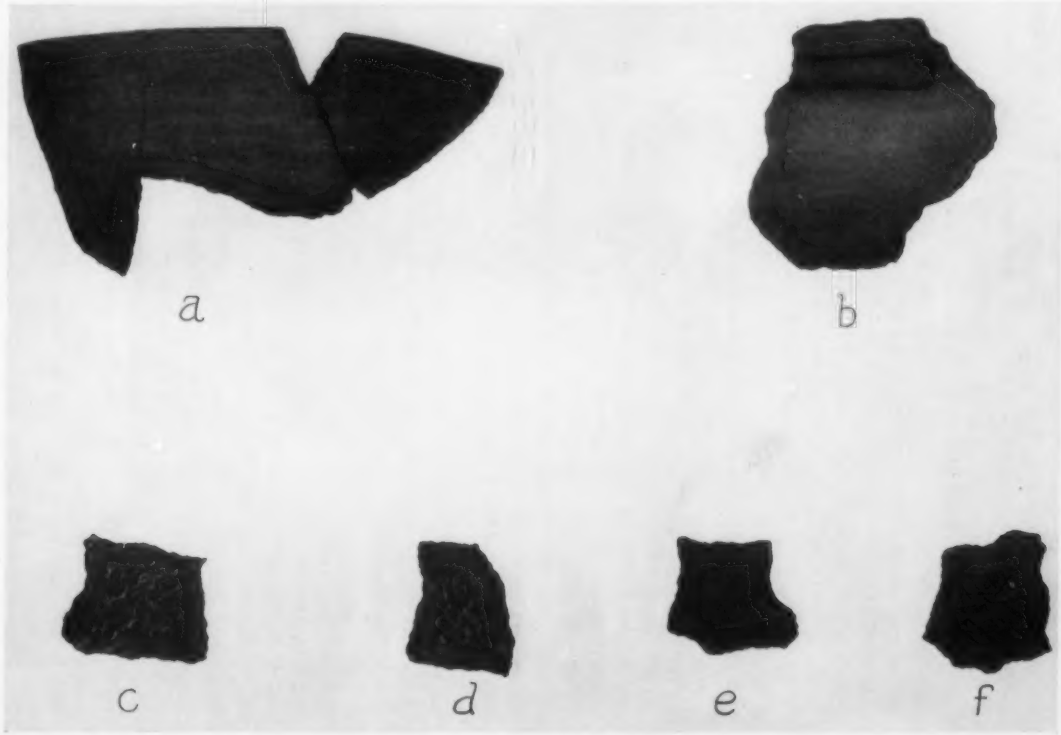
Incomplete vessels of the Top-Layer culture.



Decorated Top-Layer potsherds.



Decorated Top-Layer potsherds.



Intrusive Caddo sherds found in bluff shelters, Arkansas.

UNIV. OF MICH.

Basketry, furthermore, appears to have somewhat influenced the shape of the pottery. The constricted bottoms might have resulted from the potter's having pressed the external coil of the vessel base into the angle formed by the walls and bottom of the basket. Moreover, there are diagonal imprints or crenulations along the margins of some of the bases, which suggest the border weave of certain Bluff-Dweller trays.

The corner extensions of the rectangular bases, referred to in previous publications as rudimentary feet,[23] do not appear to be vestiges of vessel supports. Instead, they seem to have been derived from basketry. Two wicker baskets (Pl. XX) from Cob Cave, Newton County, and Indian Creek Shelter, Benton County, Arkansas, respectively, have rectangular concave bases woven in such a fashion that the corners protrude. Certain Marksville and Coles Creek pottery bases from the Kirkham site in south Arkansas have a concave lower surface,[24] but they lack impressions of basketry.

The beaker form, typical of Marksville, Coles Creek, and Deasonville wares, bears some resemblance to the Bluff-Dweller pack basket. Both a basket illustrated by Harrington[25] and a Coles Creek beaker obtained by Lemley at the Crenshaw site on Red River[26] have rectangular bases, straight walls, and round orifices. Moreover, the raised border of the basket is somewhat comparable to the rim band of the pot.

Decorated potsherds are in the minority in the bluff shelters just as they are in the lowlands of Arkansas. Characteristic techniques and motifs, however, are present.

There are two examples of incised crosshatching (Pl. XXI, *a* and *b*). These are wall sherds and not cambered rims, which generally bear such decoration in the Marksville of south Arkansas and Louisiana.[27] Moreover, the characteristic row of hemiconical punctates is absent.

One bowl rim (Pl. XXI, *c*) has a Yokena Incised pattern composed of broad grooves arranged in curvilinear fashion. As is customary, these meanders are separated from the rim by a horizontal line similarly incised. Both exterior and interior surfaces of the potsherd, including the grooves, had been smoothed. This particular rim is straight, but lacks the marginal thickening which Ford includes in his type description of Yokena ware.[28] Its lip, however, is ovate.

Three examples of Marksville Troyville Stamped occurred in widely separated shelters. One of these is from a beaker (Pl. XXI, *d*). The rouletted area between the smoothed grooves is especially well done. The regular spacing of delicate imprints is quite reminiscent of the

[23] Dickinson, 1936, p. 62. [24] Dickinson and Lemley, 1939, p. 162.
[25] Harrington, M. R., 1924, Pl. 11*c*. [26] Lemley, 1936, p. 224.
[27] Ford, 1936, p. 224. [28] Ford and Willey, 1939, No. 3, p. 7.

roulette work on a beaker rim from the Kirkham midden in south Arkansas.[29] The rim curvature of another of our Troyville Stamped specimens (Pl. XXI, *e*) is also suggestive of a Kirkham sherd.[30] This Bluff-Dweller fragment has a rather broad smoothed band separated from rouletted areas by grooves. The third Troyville Stamped potsherd seems to be a Bluff-Dweller imitation of Marksville decoration technique (Plate XXI, *f*). Its channels and plain bands are typical, but the roughening was done either with the thumb nail or with a cane. The impressions remotely resemble notched rocker work.

The Thompson shelter, Newton County, also yielded an unclassified rim sherd (Pl. XXI, *g*) which seems to be related to Marksville ware. Like specimens from the Kirkham Place,[31] the potsherd has a notched rim lip and a design composed of a triangle below an incised horizontal line. The triangle is filled with shallow punctations made with a pointed instrument. Though the lines are wide, they are not smooth, and were made with a reed while the clay was quite damp.

Two examples of Coles Creek Incised came from the same shelter. One belonged to a bowl with incurved rim (Pl. XXI, *i*). The narrow incised line in the rim lip and its overhanging line below the thickened rim definitely relate it to Coles Creek vessels found in the graves at the Crenshaw Place.[32] The exterior surface has been well polished. The other fragment is half of a pottery disk that had been perforated (Pl. XXI, *h*). The object had been made from a vessel having an incised overhanging line. Though earthenware disks are frequently found in Caddoan sites, only recently have they been discovered in Arkansas Marksville middens. This is the first Coles Creek specimen which has come to our attention.

At the Montgomery shelter near the boundary between Carroll County, Arkansas and Barry County, Missouri, we found a Coles Creek rim of a bowl having incurved walls (Pl. XXI, *j*). The rim lip is ovate and has a slight interior marginal fold observed on a number of sherds at the Kirkham Place.[33] It likewise has a line incised with a pointed instrument 8 mm. below the rim. A rim sherd of similar form also occurred at the Craddock shelter in Crawford County, but it has an incised pattern of concentric triangles (Pl. XXI, *k*).

Certain sherds from Curiosity shelter, Washington County, and from Beaver Pond and Whitson Hollow shelters, Crawford County, shown in Plate XXII, resemble Coles Creek specimens from Strickland Island (Pl. XXIII, Fig. 1). It will be noted in the drawings that the

[29] Dickinson and Lemley, 1939, Pl. 37*c*. [30] *Ibid.*, Pl. 37*d*.
[31] *Ibid.*, Pl. 40*f*. [32] Lemley, 1936, Pl. 8, 2 and 3.
[33] Dickinson and Lemley, 1939, p. 158.

major pattern is a series of incised lines arranged in triangular fashion to form a panel just below the rim of the vessels. The triangles were nested and hatched, or else filled with similar figures of decreasing size.

On two sherds from Beaver Pond and Strickland Island (Pl. XXII, *c*; Pl. XXIII, Fig. 1, *i*) the incising was done quickly with a blunt tool, leaving linear irregularities. Straight lines contrast with the curvilinear ones. Some strokes either extend into others or cross them, a feature also present on some of the sherds decorated with triangles. Newkumet reports sherds from Le Flore County, Oklahoma, which have designs that appear to be related.[34]

A group of red painted potsherds (Pl. XXIII, Fig. 2, *a*) occurred at Denny Cave in Madison County. These belonged to a bowl form which was possibly the precursor of the cazuela. The paste is Smoke Gray, and the slip Brick Red.[35] The rim lip is flat. A similar form, but unpainted, occurred at the Crenshaw site;[36] and red slipped sherds with a thickened lip were present in the village debris of Coles Creek and Marksville sites along the Ouachita. The vessel was perforated, a trait previously noted in this ware.[37] The exact relationship of this type of red pottery is still uncertain.

At Edens Bluff in Benton County we obtained grit tempered sherds of a semiglobular bowl which has circular depressions pecked into its outer wall (Pl. XXIII, Fig. 2, *b*). Obviously, these could not have been for ornament. Similarly mutilated vessels were found by Lemley in the Coles Creek graves at the Crenshaw Place, which suggest, as he has observed, the Floridian custom of killing pottery.[38] Though this trait alone is insufficient for theorizing, its presence in northwest Arkansas reinforces a previous statement that there is a definite ceramic tie between Arkansas and Florida.[39]

A sherd seemingly of Woodland character also came from Edens Bluff (Pl. XXIII, Fig. 2, *c*). Apparently, it belonged to a beaker, which had been tempered with limestone. The decoration consists of vertical rows of cord markings and imprints of a cane. A somewhat similar fragment (Pl. XXIII, Fig. 2, *d*) was picked up on the surface of a midden at the Bell Plantation, Mississippi County.[40]

POTTERY OF THE TOP-LAYER CULTURE

Pottery made by the last occupants of the shelters can readily be identified, for it varies little throughout the area. Apparently, it was all

[34] Newkumet, 1940, pp. 5–6, Pls. 3 and 3-A. [35] Ridgway, 1912.
[36] Lemley, 1936, Pl. 8, 5. [37] Ford, 1935, p. 27.
[38] Lemley, 1936, p. 33. [39] Dickinson, 1936, p. 62.
[40] Dellinger and Dickinson, 1940, pp. 133–147.

coiled. One sherd (Pl. XXVI, *a*), an indented corrugated piece, strongly suggests southwestern influence,[41] though its composition is distinctly local. In contrast to the aplastics of the earlier wares, shell seems to have been the only temper used by the last people who occupied the bluff shelters. Predominating paste colors are: Vinaceous Cinnamon, Light Buff, Deep Grayish Olive, and Deep Neutral Gray.[42] Fire clouds are common, sometimes covering almost all the exterior surface. This probably was due, however, to culinary use rather than to intentional smudging. The texture is contorted but compact; and the hardness ranges from 2 to 3.5. The walls are from 5 to 10 mm. thick. Surfaces were smoothed but not polished.

No slip has been noted on the sherds, but a few of them have a red, and less frequently, a yellow wash on their interior surface. In contrast to the red slip of some Arkansas Coles Creek ware, it was unfired and, consequently, can be easily removed. This calls to mind Wedel's description of Pawnee pottery: "The most interesting feature of this pottery is a thick, deep-red coloring matter with which the interiors of vessels are invariably covered; it is very rarely applied to the exterior also. This coating consists of red ochre, applied after the baking of the vessel, and in nearly all cases can be readily rubbed off. In this respect it resembles the 'fugitive red' wash found on Late Basketmaker bowls of the southwestern United States. It differs, however, from the latter in being much thicker and generally restricted to bowl interiors. A similar wash has been noted, but not very fully described, on some Mandan pottery from North and South Dakota. It occurs also on earlier prehistoric wares of the Pawnee area, along with the collar type of rim, but is not found in eastern Nebraska save where Pawnee influences are recognizable."[43]

The forms themselves are simple and purely functional. Fortunately, several complete vessels and others capable of restoration have been discovered on ledges or in crevices in the bluffs. These, together with hundreds of sherds in the cave refuse, give us a fairly complete range of shapes. The principal forms are: (1) a bowl with incurved rim (Pl. XXIV, *c*); (2) a truncated conoidal bowl (Pl. XXVI, *j*); (3) a pot with curving walls and narrow everted rim which may also have handles (Pl. XXIV, *a* and *b*; Pl. XXV, *a*); (4) an urn having a wide outflaring rim, the body may be globular or elongated (Pl. XXIV, *e*); (5) a tall jar, probably used for storage, in silhouette resembling two truncated triangles placed base to base (Pl. XXIV, *d*); (6) a caldron which has a collar below the rim (Pl. XXV, *b*); and (7) a bottle, the shape of which is

[41] Shepard, 1936, p. 553. [42] Ridgway, 1912. [43] Wedel, 1936, p. 70.

unknown, only two necks having been discovered, both with ovate lips, one with an exterior marginal fold.

Bowls with incurving rim and truncated conoidal forms, as well as the urn, are found among the Caddo who may have derived these shapes from the Coles Creek potters. The caldron shape occurs in the Coles Creek, but lacks the collar. This collar is vaguely analogous to the Pawnee; it is narrow and arranged at the throat of the vessel instead of being an integral part of the rim. Bottles, of course, are common in all Arkansas ceramic complexes except the Marksville, Deasonville, and Coles Creek.

As would be expected from the number of shapes, the sizes also vary. The pot (Pl. XXIV, *b*) which is the smallest complete vessel we have found, is 13 cm. high, and 14 cm. wide at its greatest diameter. The bowl with incurved rim (Pl. XXIV, *c*) has a maximum diameter of 32 cm. and is 19 cm. high. The storage jar (Pl. XXIV, *d*) is 30 cm. high and has a maximum diameter of 35 cm.

All the bases in our collection are flat and round, with the exception of two which are rectangular. One of these has a pronounced corner like the Marksville and Coles Creek. Moreover, a number of the circular bases are constricted.

Variation in rim types is shown in Fig. 29. Occasionally, rims are thickened. One (Fig. 29, *a*) has an interior marginal fold reminiscent of some Coles Creek pottery. Another rim is cambered somewhat like the Marksville (Fig. 29, *k*). On truncated conoidal bowls the rims may be crenulated or scalloped (Pl. XXVI, *i–k*). Incidently, both the form and scalloping are common in Caddoan earthenware. In general, rim lips are flat and ovate. Handles were frequently added to the rim of urns, tall jars, and caldrons. Most of them are simple loop handles (Pl. XXVI, *b*), but sometimes the strap terminates in one or two nodes just above the juncture with the rim lip (Pl. XXVI, *c–e*). Sometimes the handles have parallel incised lines (Pl. XXVI, *f* and *g*). Vessels were also perforated for suspension (Pl. XXVI, *h*).

Only a minor percentage of the ware was decorated. As has already been noted, several integral features of the vessel forms had ornamental value: the crenulated and scalloped rims, the collar, and handles. Decoration, both intaglio and relief, shows little originality and skill. Nodes in clusters of three (Pl. XXVI, *l*) and fillets (Pl. XXVI, *m–p*), either single or grouped, were applied to the body and rim of vessels. The fillets were left plain or else notched, and in one instance were arranged in a manner suggestive of a cord (Pl. XXVI, *q*). Punctations occur in one or more rows beneath the rim lip, and sometimes fill the area outlined by fillets (Pl. XXVI, *q–s*). The rim lip of the storage jar (Pl. XXIV, *d*)

is punctated, a feature Dunlevy and Bell have observed in certain Nebraska pottery.[44]

Incised patterns are chiefly triangular, and are arranged in a series near the rim (Pl. XXVII, *a–d*). Some of the triangles are hatched;

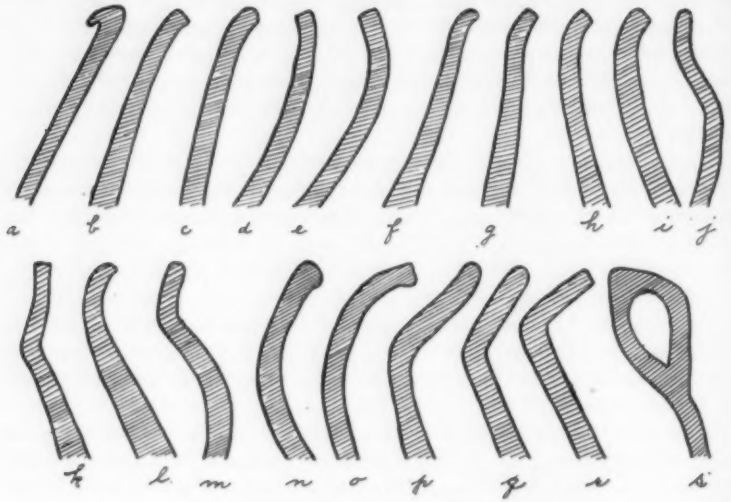


FIG. 29.—Rim profiles of Top-Layer pottery.

others are filled with chevrons of decreasing size. The storage jar with punctated rim, previously referred to, has triangles bifurcated and hatched with opposing lines. In Plate XXIV, *e*, we also illustrate an urn having a band of chevrons separated by fillets. While these patterns are somewhat similar to some Coles Creek designs, it must be borne in mind that they are also analogous to the Pawnee.[45] Whatever may have been their origin, we feel that simple rectilinear decoration itself is insufficient for determination of cultural affiliations.

A series of lines irregularly incised with a brush of grass fibers occurred on only one sherd (Pl. XXVII, *f*). Considering the use of grasses for many purposes by the people of the Top-Layer, it is strange that this simple technique was not readily applied to ceramic decoration. The Caddoes on both the Ouachita and Red Rivers sometimes brushed their cooking vessels, creating an interesting surface finish without much effort.

[44] Bell, 1936, p. 179, Fig. 13. [45] Wedel, 1936, p. 68.

In comparison with other aboriginal decorative groups in Arkansas, the absence of curvilinear design here is striking. It is true that rectilinear patterns do occur all over the state, but they are in the minority. The double series of quadrilateral figures on one sherd (Pl. XXVII, *g*) is unique in aboriginal Arkansas design.

Association of a few Caddo sherds with the shell tempered pottery in three shelters point toward a protohistoric horizon for the Top-Layer culture. These were well made, having grit temper, compact paste, and polished surfaces. Some of the fragments belong to a truncated conoidal bowl which has a red slip (Pl. XXVIII, *a*). Another bowl sherd has an engraved, rectilinear motif (Pl. XXVIII, *b*); and the remainder were parts of plain and engraved bottles (Pl. XXVIII, *c–f*). The plain pieces have crackled surfaces like occasional Ouachita River specimens.

CONCLUSIONS

The Marksville-Coles Creek pottery cannot easily be dismissed as intrusive, because of its widespread distribution. It occurs in shelters from the southern extremity of the Ozark plateau to the Missouri state line. If trade accounts for its presence, then intercourse between the peoples of north and south Arkansas must have been fairly extensive. Furthermore, the acquisition of one trait implies others. As the greater part of Bluff-Dweller materials collected are of perishable nature and the majority of Marksville-Coles Creek specimens are of earthenware and stone, an exact comparison is impossible. Except for pottery, few similarities have been noted between the Ozark Bluff-Dwellers and the south Arkansas Marksville-Coles Creek people. In Harrington's and our excavations, the Marksville lozenge shaped projectile point was common, but insofar as we have observed, the double notched point, typical of pre-Caddo horizons in southern Arkansas, does not occur in the shelters. Moreover, Marksville boatstones, gorgets, and celts are absent.

The one pipe which may possibly be associated with the Bluff-Dwellers is of the platform type like the Marksville. Otherwise, there is no evidence that the Bluff-Dwellers were acquainted with tobacco, a negative trait which would imply an early period. In this connection, it is noteworthy that no pipes have been found in Kentucky caves, though tobacco has been reported from them.[46]

The potsherds place the final stage of the Bluff-Dweller culture on the Marksville-Coles Creek horizons. Therefore, we may assume that the non-ceramic phase of the former people is earlier than any pottery making stage in Arkansas, provided that the prehistoric cultures developed out of the same base.

[46] Webb and Funkhouser, 1936, p. 139.

Setzler, in discussing the aboriginal occupation of the Mississippi Valley, says: "An Agpo base, having agriculture and pottery and involving a semi-sedentary mode of existence, underlies practically all the cultural manifestations other than the Folsom in the Mississippi Valley." He adds as a footnote: "There are instances of cultural complexes in the caves of Kentucky and Ozark Bluff-Dwellers, Copena, etc., which have not contained pottery, but these are peripheral to the main problem, and may represent an offshoot of an early nomadic type."[47]

Wissler believes the inhabitants of the Kentucky and Ozark shelters to have been among the first agriculturalists in the Mississippi Valley. Referring to an analysis of cave remains in Menifee County, Kentucky, he states: "Judging by the thickness of the debris, which reveals little change in the methods of gardening, things were on an even keel for a long time, perhaps many centuries; but as we near the top layer, changes are evident. Some tobacco appears for the first time, then maize or corn, and pottery."[48]

Although no detailed comparison of Kentucky and Arkansas caves remains has ever been made, there seems to be some relationship between them. Jones has observed that there is a "remarkable similarity" between the vegetal remains from the Newt Kash Hollow shelter of Kentucky and those from the Ozarks.[49]

Fabrics, projectile points, and bone work from the two areas bear a superficial resemblance.[50] Pottery seems to have appeared late in both regions. However, the sherds illustrated by Webb and Funkhouser are not like the Bluff-Dwellers'. The occurrence of tobacco but no pipes in Kentucky deposits and of one pipe and no tobacco in the Ozarks suggest a period when the tobacco complex was still undeveloped.

The non-ceramic level of the Bluff-Dweller culture might imply a similar horizon below the Marksville. The form of some of the vessels and the way in which they were moulded in baskets support this view. The Marksville is the earliest pottery horizon so far discovered in Arkansas. Setzler reports, however, that Ford had found a ceramic horizon earlier than the Marksville on the shores of Lake Pontchartrain in Louisiana.[51]

Identification of the Top-Layer pottery which followed the Bluff-Dweller Marksville-Coles Creek stage in the shelters is of foremost importance. The ceramic remains of these people have much diagnostic value, but alone they are insufficient. In other words, the problem is

[47] Setzler, 1940, p. 255.
[48] Wissler, 1940, p. 22.
[49] Webb and Funkhouser, 1936, p. 165.
[50] We have only studied illustrations of the Kentucky materials.
[51] Setzler, 1940, p. 259.

primarily a question of identification of the entire culture. Here, as in the case of the earlier Bluff-Dwellers, the majority of the data obtained by workers in the area is still in unpublished form, and the scope of this paper does not permit us to enter into a detailed discussion of culture.

On the basis of projectile points, celts, grinders, L-shaped Catlinite pipes, pottery, etc., Harrington related the culture to a late one found by Park in northeastern Kansas. He expressed a belief that both were Siouan. Inasmuch as the Osage occupied northwestern Arkansas in historic times, his theory seems all the more plausible, but as Harrington himself states, "while the Top-Layer culture is the latest in the rock-shelters, it may not have been the latest in the district."[52]

According to Strong, the late Kansas culture discovered by Park may have developed out of the Nebraska culture.[53] Hill and Wedel have identified it with the Oneota.[54] Therefore, Griffin has pointed out "the probability that Harrington's 'Top-Layer' will eventually be classified in the Oneota aspect of the Upper Mississippi phase."[55]

Of particular interest are the characteristics Harrington used in establishing the relationship between the Top-Layer and the Kansas pottery: shell tempering, angular incised decoration, globular forms, and flared rims. Without minimizing the value of these criteria, we wish to emphasize the fact that ceramic relationships are more complex than Harrington's list of traits indicates.

Never having examined any ceramic material from sites in northeastern Kansas, we are in no position to criticize Harrington's theory of Siouan origin for the Top-Layer earthenware. Certainly, his criteria show strong resemblance; but intensive studies of the ceramics in the Mississippi Valley since Harrington's work here have revealed a broader, more complex basis for the historic cultures; and more extensive excavations in the shelters have likewise yielded collections that expose a thread of evidence linking them with other peoples.

University of Arkansas
Fayetteville, Arkansas
March, 1941

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[52] Harrington, M. R., 1924, p. 19.
[53] Strong, 1934, p. 284.
[54] Griffin, 1937, p. 297.
[55] *Ibid.*

AN ONEOTA SITE IN MISSOURI[1]

BREWTON BERRY and CARL CHAPMAN

THE village site, which is the subject of this report, has been known for at least three-quarters of a century. Its large size, the abundance of surface materials, and the nearby presence of a conspicuous earthwork, combined to attract attention to the site. Prof. G. C. Broadhead, of the University of Missouri, explored the region in 1872,[2] and gathered a number of sherds which form part of the present archaeological collection at the University. During the '70's and '80's there were quite a few pseudo-scientific excavations on the site, the published reports of which are more tantalizing than illuminating to the modern student. Fowke was there in 1907;[3] and local amateurs have long made a practice of gathering specimens there, and sending them to scientific institutions.

When the current taxonomic system came into vogue in the Mississippi valley, it was readily observed that the pottery from this site bore a striking resemblance to that from neighboring states and that it could be classified in the Oneota aspect of the Upper phase of the Mississippi pattern. This paper, based upon recent surveys and excavations, offers a more complete report than has yet been published on the cultural material from the site. Furthermore, the writers are convinced that this was the site of the Missouri Indian village of the late seventeenth and early eighteenth centuries. This report, therefore, presents one more bit of evidence for the theory that the Oneota aspect represents the culture of the Chiwere Sioux.[4]

A survey was made during the summers of 1939 and 1940, covering both banks of the Missouri River, and some of its tributaries, in Howard, Chariton, Carroll, and Saline Counties. Small village sites were found to be quite numerous. Cultural material, for the most part, resembled the Woodland type, which appears to be common over a great part of the state of Missouri.[5] On a few sites, however, we found sherds and points similar to those recently reported from the Kansas City area, and which have been designated Hopewellian.[6] These Woodland and Hopewellian sites were invariably small in size, and on none of them did we find any evidence of trade material. We conclude, therefore, that

[1] This study was made possible by grants-in-aid from the Social Science Research Council of New York and the Research Council of the University of Missouri.

[2] Broadhead, 1880, p. 356. Bibliography, see pp. 311–318 of this journal.

[3] Fowke, 1910, pp. 86 ff. [4] Griffin, 1937*a*.

[5] Adams, 1939; Berry, Wrench, Chapman and Seitz, 1938; Harrington, J. C., 1938

[6] Wedel, 1938, pp. 99–106.

they had been abandoned long before the arrival of the whites, and probably even before the arrival of the Chiwere Sioux.

Four sites in the area, however, were unique. The site marked "B" in Fig. 30 is the subject of this report. It covers an area of approximately 150 acres. In addition to the definite Oneota traits described

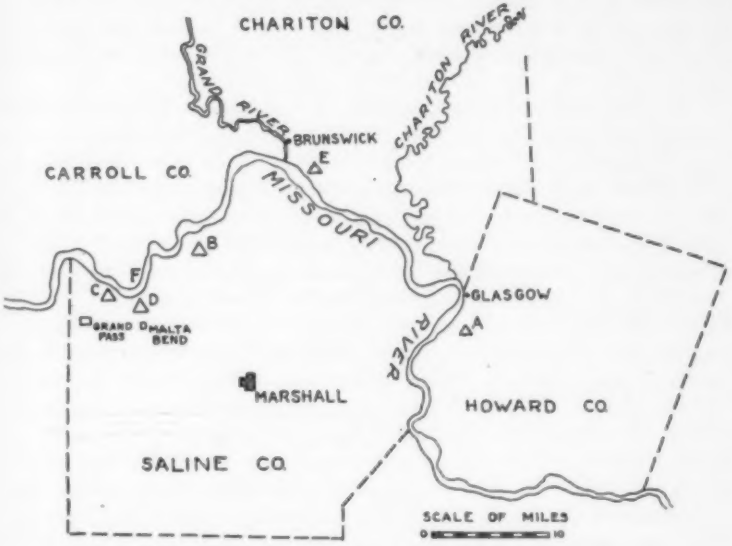


FIG. 30.—Map showing location of sites, Missouri

herein, we found a small amount of trade goods. Historical data strongly indicate that the Missouris were living here in the early part of the eighteenth century; and both documentary evidence and the very small quantity of trade material suggest that the site was abandoned soon after the whites began to penetrate the region. Site A, from which we have only surface material, is also Oneota. No evidences of contact have come from this site; and we suspect, therefore, that it is prehistoric Oneota. Site C, at which only a little work has been done, is definitely later. Trade materials predominate, and the pottery, while Oneota, is limited in quantity and degenerate in type. We believe this to be a Missouri village of the late eighteenth century. Site D, at which only one test pit has been dug, is also late. Trade goods are abundant, while sherds and flint work are extremely rare. We believe this to be the village of the Little Osages.

Much of the difficulty in locating the Missouri village traces back to Lewis and Clark, who reported an "old Missouri village" on the north side of the river, a few miles below the mouth of the Grand.[7] (E, Fig. 30). This location is noted also on Pike's map of 1806, and on Long's map of 1819; and is mentioned by Brackenridge in his journal of 1811,[8] as well as in later sources. Historians seem ever since to have taken this location as final, and make frequent references to it in their writings. We have been unable, however, to find any archaeological evidence for this site.

Two days after they had passed this "old village," Lewis and Clark recorded in their journal that they "camped on the starboard side, nearly opposit the antient village of the Little Osages and below the ant. village of the Missouries, both situations in view and within three miles of each other."[9] Some of their companions made similar entries in their journals. Patrick Gass wrote: "We camped on the north side, opposite an old Indian village."[10] And Charles Floyd said: "Encampt on the north side opset to antent old village of Missures Indians."[11] Our belief is that the party made camp at approximately the spot marked "F" in Fig. 30, which would be "nearly opposit the antient village of the Little Osages" (Site D), and "below the ant. village of the Missouries" (Site C). Lewis and Clark, apparently, had no knowledge of our Site B, and to identify its occupants we must consult earlier sources.

The cartography of the Missouri valley began with Marquette in 1673, and before the dawn of the nineteenth century more than a hundred maps of the territory had been produced.[12] These maps are good, bad, and indifferent. They locate the Missouri village at various places over an area three hundred miles in diameter. Either the Missouris were quite nomadic, or the cartographers have to be taken with discrimination. The latter seems the more reasonable. Discarding, therefore, those maps that are manifestly unreliable, and depending upon those made by trustworthy observers or painstaking cartographers, such as the Delisles, we are able to determine the approximate location of the Missouri village of the early eighteenth century.

The Missouri River, following an easterly course across the present state of Missouri, makes a large, conspicuous bend some two hundred miles from its confluence with the Mississippi. This great bend early attracted the notice of cartographers, and appears on many of the maps

[7] Thwaites, 1904*a*, Vol. 1, Pt. 1, p. 47; Vol. 6, Pt. 1, pp. 4, 86.
[8] Thwaites, 1904*b*, Vol. 6, p. 164. [9] Thwaites, 1904*a*, Vol. 1, Pt. 1, p. 49.
[10] Gass, 1847, p. 18. [11] Thwaites, 1904*a*, Vol. 7, Pt. 1, p. 11.
[12] Hamilton, 1934, *passim;* Mott, 1938, pp. 305–314.

that were issued shortly after the year 1700. It is in relation to this bend that we are able to locate the Missouri village.

Most of the early cartographers agree in placing the village on the *right* bank of the river. An exception to this is to be found on DuPratz's map of 1757. Generally, however, it was placed on the south side, although some place it as far west as the Kansas River, and some as far east as the Mississippi. The best of the cartographers not only agree in placing the village on the right bank, but most of them go so far as to place it in the bend of the river, to which reference has been made. There it is found on the maps of Delisle, Danville, Kitchin, John Mitchell, and many others. This bend of the river encloses a great plain of approximately three hundred square miles, and it is in the southwestern corner of this area that the best cartographers have located the Missouris. Some of them note close by a village of Little Osages.

References to the Missouris in the journals of explorers present similar problems, but lead to the same conclusion. Some of them, such as Baron Lahontan,[13] are not to be relied upon in reporting Missouri villages a few miles from the Mississippi. Most of the early records, on the other hand, place the village just about where the best cartographers place it. In 1717, DuTisné said: "It is eighty leagues from the mouth of the Missouri River to the village of that name; thence one league to the southwest to a village of Osages."[14] In 1723, La Renaudière wrote: "From the Grand River one goes to the village of the Missouris, which is no more than six leagues, on the south wide."[15] In 1721, Charlevoix said: "I have just seen a Missourian woman who tells me her nation is the first we meet with in going up the Missouri. Their settlement is eighty leagues from the confluence of that river with the Mississippi. . . . All of these nations of whom I have been speaking dwell upon the western bank of the Missouri, excepting the Aiouez [Ioway]."[16] And Diron D'Artaguiette wrote in 1723: "The Mysouri Indians, a nation situated 100 leagues up this river, on the left as you ascend, have arrived to see Boisbriant."[17] All of these early explorers agree that the Missouris were living on the right bank, and most of them definitely place the village fifteen miles or so above the mouth of the Grand River.

A site, moreover, which was occupied by the Missouris in the 1720's might be expected to yield a certain amount of trade material. Just when traders began to visit them we are unable to say, but we do know that Bienville wrote to the Regency Council on April 25, 1722, saying that he had ordered Boisbriant to go and establish a fort near the

[13] Thwaites, 1905, p. 200. [14] Margry, Vol. 6, p. 310.
[15] *Ibid.*, p. 393. [16] Charlevoix, 1923, Vol. 2, p. 208.
[17] Mereness, p. 77; Villiers, 1925, p. 88.

Missouris, and adds: "The savages will be in a position to resist (the Spaniards) as soon as we furnish them munitions."[18] It is not without significance that in our excavations at Site B we have found small amounts of glass, brass, and copper, but no evidences of firearms.

When the Missouris abandoned Site B we are unable to say. Perhaps they did move farther downstream, and to the north bank, where they are shown on DuPratz's map of 1757, and where Lewis and Clark reported their "antient" village. Perhaps future surveys of the region will result in the location of such a site. At any rate, the Missouris, decimated by Sauk and Fox attacks and smallpox, and desiring the protection of the Little Osages, seem to have moved once more later in the century and to have established themselves, we surmise, at Site C. Both of these Siouan tribes, however, were forced to leave the region about 1790. When Truteau ascended the river in 1794, he recorded the fact that six leagues above the Grand River, on the right bank, "the Missouris and the Little Osages lived for some years."[19]

For more thorough investigation we chose Site B, known as the Utz Site.[20] It is late enough to have been visited and noted by white explorers, and can, therefore, be attributed to the Missouris with considerable assurance. On the other hand, it is sufficiently early so that the bulk of its cultural material is aboriginal.

The site is situated on a high prominence of land, known locally as "The Pinnacles," and from which a beautiful view of the surrounding country may be had. The Petitesas Plain, a low, fertile prairie extending for ten miles to the town of Grand Pass, joins this promontory on the southwest. Two miles north and northwest runs the Missouri River, the course of which is northeast at this point. Immediately west, at the foot of the hill, is a dry lake bed which may have been at one time the channel of the river. To the east is Muddy Creek which flows south to the edge of the Petitesas Plain.

The area of the village, judging by sherds, bones, and flint chips, was about 150 acres. It is now owned by Mr. J. S. Utz, Miss Mary Utz, and Mr. Herman Sutter, and is entirely within the cultivated fields which cover the summit and gentler slopes of a divided ridge. This ridge is somewhat in the shape of a "T," the long axis running approximately north and south. Many years ago low mounds of refuse were observed

[18] Margry, Vol. 6, p. 387. [19] Truteau, 1914, p. 303. Cf. Berry, 1936.

[20] The writers acknowledge invaluable assistance from the following: Prof. J. E. Wrench, Messrs. John Mack and Chas. D. Peterman, Mr. and Mrs. J. S. Utz, Mr. and Mrs. Herman Sutter, Mr. and Mrs. Henry Hamilton, Mr. and Mrs. Sam Irvine, the Saline County Historical Society, and others too numerous to mention. Illustrations are by Mrs. Elsie H. Froeschner.

here and there along the ridge, but cultivation and erosion have reduced them to such an extent that only three slight elevations can now be seen. A gravel road has been cut along the long axis, exposing several groups of cache pits.

In the summer of 1939, three test trenches were dug: the first was made on the highest point of the site, on the western tip of the "T"; and two others were dug farther east, but still on the east-west axis. The method of testing consisted of digging short trenches, five feet in width, which were widened and extended as the circumstances demanded. The area excavated covered 700 square feet. The trenches were usually three feet in depth, which took them into undisturbed, sterile soil, but were taken deeper, of course, when refuse pits were encountered. In 1940, we worked at the southern end of the north-south axis, excavating an area of 1200 square feet.

Burials of five individuals were found, four of which were in what may have been a cemetery, on the high western tip of the site. These were extended burials, with heads toward the south. Two were adults and two were children. One of the latter was partly intrusive in an old refuse pit. Near the skull of the other child was a long tool of elk antler. A sandstone shaft smoother (Fig. 31, 6) was found partly under the left tibia of one adult, and a carved bone (Fig. 33, 14) was on the chest of the other adult. The burials were between seven and eighteen inches beneath the present surface. The other burial was that of an adult and was found on the village site proper. Its head was toward the north. A single end scraper was in the left hand. The burial was thirty inches beneath the surface. All interments were primary, extended, and supine.

Often, after cultivation and heavy rains, evidences of burials are exposed at many places on the site, which fact has led many local people to refer to the spot as an Indian burial ground. It is probable, therefore, that burials were made at random in the village.

Cache, storage, or refuse pits were abundant, a total of fifty-four having been opened in the course of excavation. Nearly all of these were bell shaped, varying from 30 to 42 inches in diameter at the top, and from 36 to 82 inches at the bottom; and they ranged from 36 to 126 inches in depth. These pits were generally filled with wood ashes and refuse, such as sherds, animal bones, broken tools, etc. A few contained a dark humus soil, with some charcoal, and very little refuse. Pits usually occurred in groups and there was some evidence of systematic location. That the pits had a rather definite placement was suggested in the last excavation by the fact that they occurred in two lines; and this line-up was preserved even in instances where later pits were constructed which intruded into older pits filled with refuse. It is possible

that the pits had a definite relation to the houses, although no evidences of house structures were found.

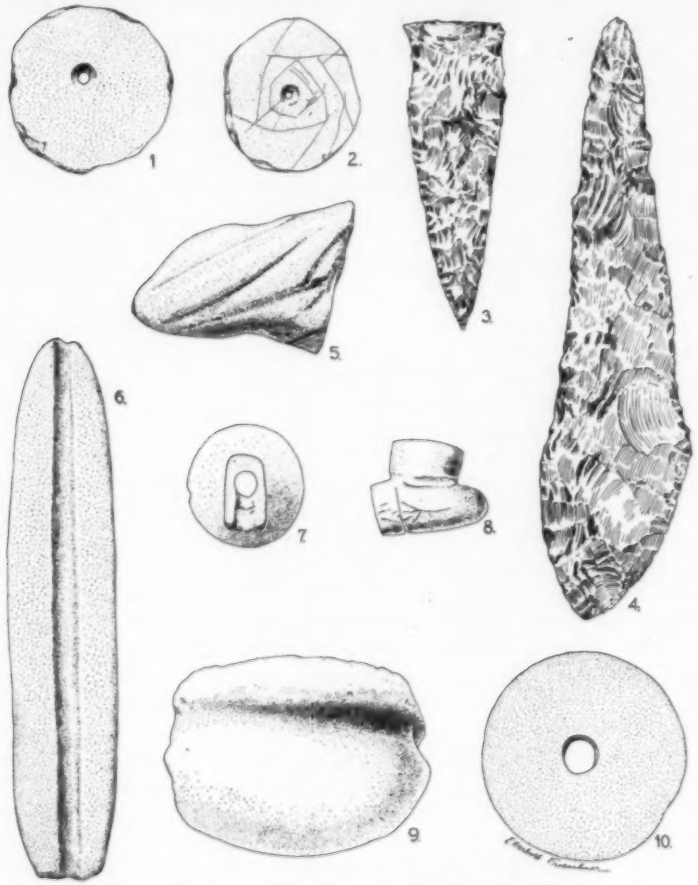


FIG. 31.—Miscellaneous artifacts, Utz site
1, 2, pottery disks; 3, 4, flint knives; 5, abrading stone; 6, arrowshaft straightener; 7, 8, 10, fragments of pipes; 9, unfinished pipe. (*One-fourth natural size.*)

Pottery was abundant, and remarkably homogeneous. While no complete pots were found, we did obtain nine restorable vessels, and a total of more than 50,000 sherds. The typical vessel was the wide-

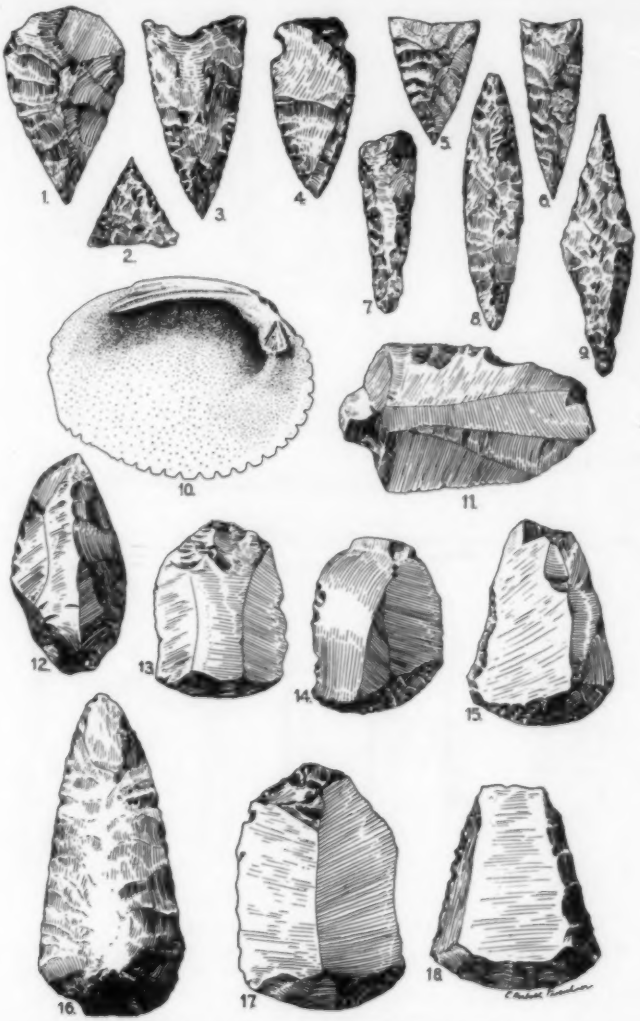


FIG. 32.—Flint and shell artifacts, Utz site

1–6, projectile points; 7–9, awls; 10, notched shell; 11, 12, gravers; 13–18, end scrapers. *(One-half natural size.)*

mouthed olla, globular, with rounded or hemispherical bottoms, round or elliptical in cross-section, and greater in width than in height. Mouths

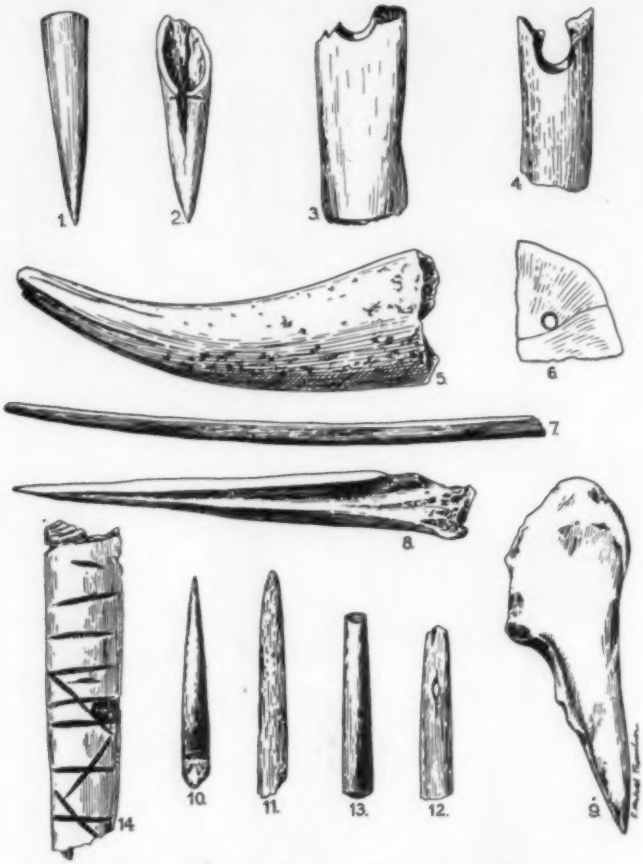


FIG. 33.—Bone and antler artifacts, Utz site

1, 2, socketed antler points, 3, 4, rib arrowshaft straighteners; 5, antler chipping tool; 6, perforated terrapin plastron; 7, long bone pin; 8–10, bone awls; 11, 12, flat eyed needles; 13, bone graver (?); 14, carved rib. (*One-fourth natural size.*)

were two to eighteen inches in diameter. Deep bowls were also present. Rims were flaring, recurved, or straight (Fig. 36, *a*), the flaring and recurved being most common. The paste was a fine, even gray. Colors

varied from buff to dark slate gray, with occasional examples of orange. Sixty-five sherds had been painted with red hematite paint. In hard-

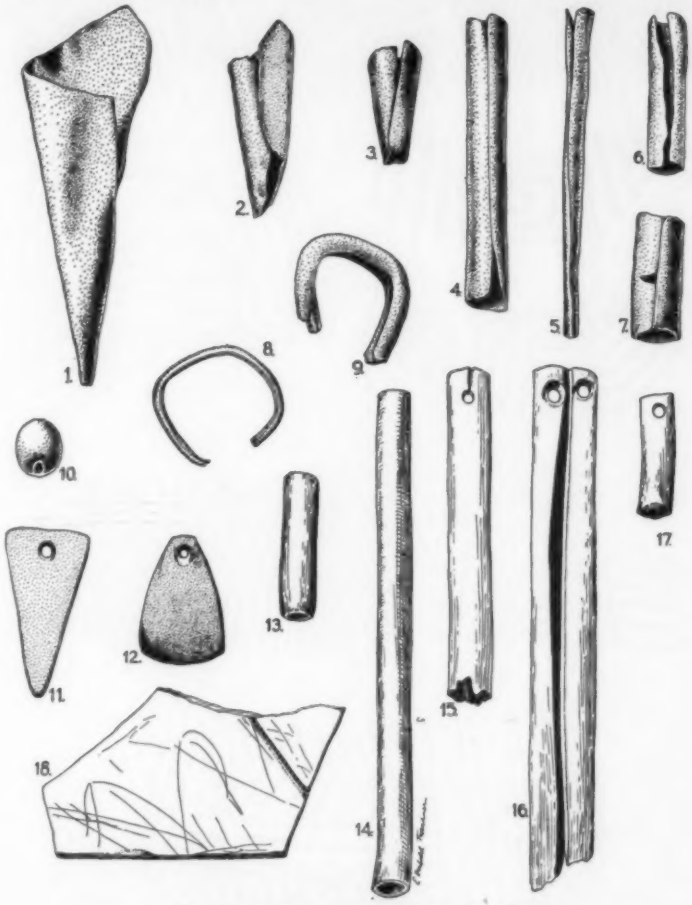


FIG. 34.—Miscellaneous artifacts, Utz site

1–3, copper cones or spangles; 4–7, copper tubes or beads; 8, 9, copper rings or bracelets; 10, blue glass bead; 11, 12, hematite and catlinite pendants; 13, 14, bone tubes or beads; 15, 16, 17, bone bracelets (?); 18, inscribed catlinite tablet (?). (*One-half natural size.*)

ness, sherds were a little above, or a little below 3 (calcite). Thickness varied from 1/16 to 7/16 of an inch. The tempering, in 99.9% of the

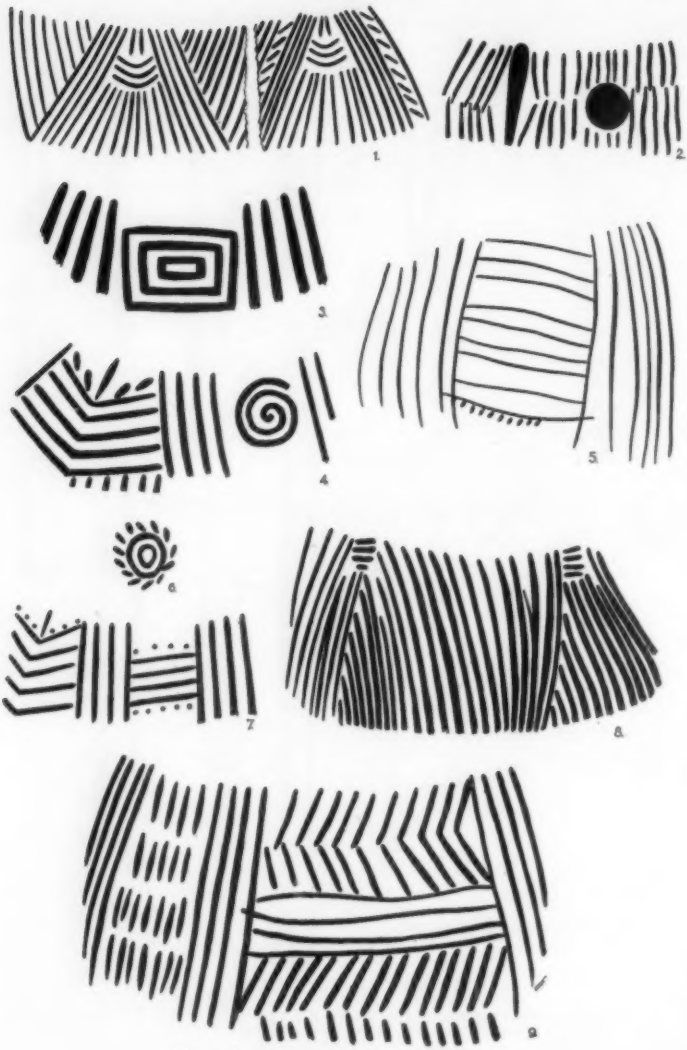


FIG. 35.—Pottery Designs, Utz site

sherds, was fine or coarse ground shell. The coarser shell often gave the pottery a "salt-and-pepper" appearance. Only fifteen small sherds were

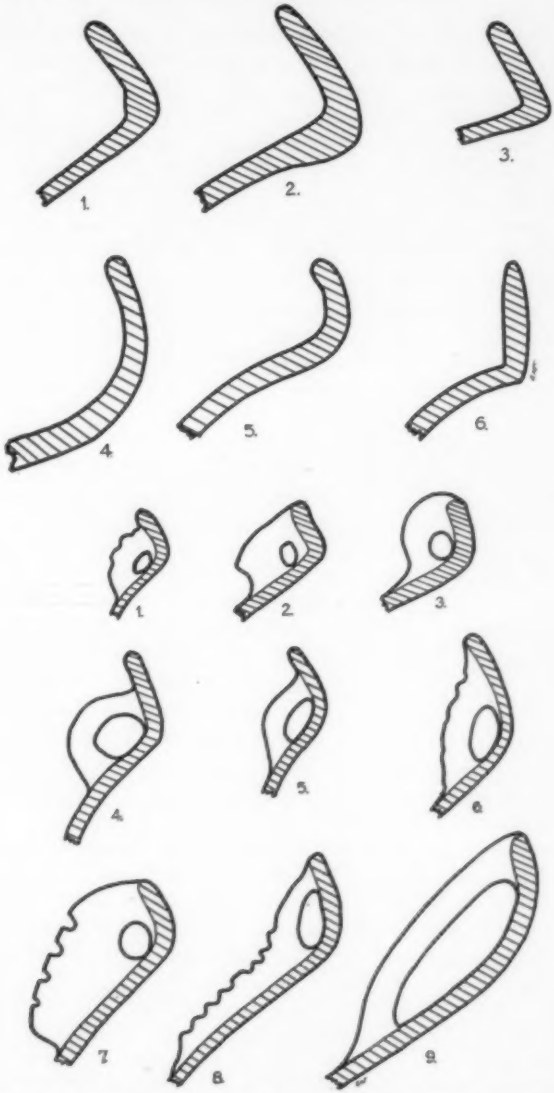


FIG. 36.—Utz site, Missouri. *a*, above, rim types: 1–3, flared; 4 and 5, recurved; 6, vertical or straight. *b*, below, cross-sections of handles.

tempered with grit, and since Woodland and Hopewellian sites occur so commonly in this area, and in close proximity to this site, we hesitate to include these sherds among the traits of this component. Nor was there sufficient evidence to suggest stratification.

Decorations occurred almost invariably on two areas: (1) on the lip, and (2) on the upper body (from the widest portion of the vessel, to the point where rim and body join). The inner rim surface was sometimes decorated, the outer, more rarely. Techniques of decoration included incised or trailed lines, dashes, and punctations. These techniques were employed to produce a variety of designs—straight lines, either parallel or converging, groups of punctations, and chevrons, festoons, and spirals. Rarer artistic designs included rectangle-within-rectangle, circular thumb-like depressions (Fig. 35, 2), and concentric circles. These designs occurred in a great variety of combinations. (Fig. 35; Pl. XXIX).

Lips were decorated with the following: (1) notches, straight or diagonally across, (2) punctations, (3) finger-tip impressions widely spaced, (4) crimps, and (5) crenulations (Pl. XXIX).

Inner rim surfaces were decorated with chevrons and/or punctations. A very few outer rim surfaces had incised line or punctate decorations.

Handles were quite common, and might be two or four in number, opposed, vertically placed, either plain or decorated. Attachment was either from lip to body or rim to body. In cross-section, they were round or flat (Fig. 36, *b;* Pl. XXIX). Some handles flared out, or widened, at the point of attachment to rim or lip, while others did not vary in width from top to bottom. On a few handles, there was a notched rib or ridge which extended onto the body of the vessel (Fig. 36, *b;* Pl.XXIX 11). Two opposed lugs, placed at right angles to the opposed handles, occurred in a few cases.

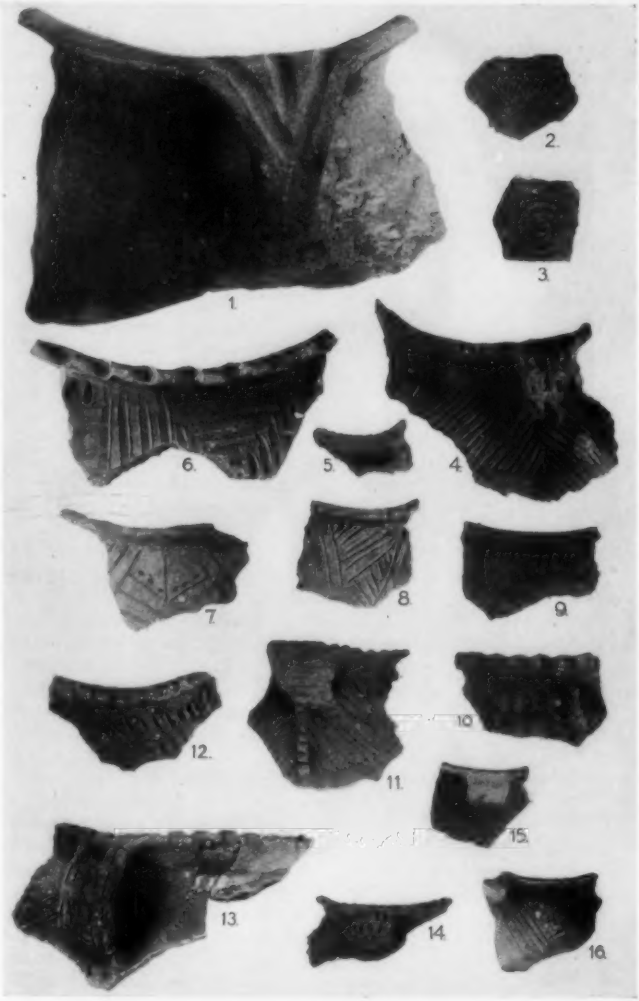
A few plain sherds had been cut upon after firing, with some fairly large instrument. We found the half of a large vessel which had been cut in two in the same manner. Perhaps the idea had been to salvage a broken vessel, using a portion of it as a sort of shallow bowl. There was evidence that the half that we found had been used for mixing paint.

Other culture traits found in the course of the excavations were the following:

1. Perforated pottery disks (Fig. 31, 1 and 2).

2. Small, flat, triangular, unnotched flint projectile points, with straight or concave bases, although a few had convex bases (Fig. 32, 1–6). Only two notched points found (Fig. 32, 4).

3. Flint end-scrapers abundant. These varied in size. Greater in length than in width; greatest width at chipped end; concavo-convex in cross-section along long axis; convex side either keeled, flattened, or rounded (Fig. 32, 13–18).



Rims, handles, and decorations, Utz site, Missouri.

4. Flint knives of various shapes and sizes, mostly large. Many of them beveled on two or four edges (Fig. 31, 3 and 4).
5. Double pointed or simple flint awls (Fig. 32, 7–9).
6. Flint gravers (Fig. 32, 11 and 12).
7. Large, notched flint axes or hoes.
8. Large, oval-shaped flints (spades?).
9. Sandstone abraders of various shapes and sizes are common (Fig. 31, 5). Also pumice, some pieces of which had been used as abraders.
10. Well made arrow-shaft smoothers of sandstone (Fig. 31, 6). In one case these were paired.
11. Pipes of limestone, catlinite, sandstone, siltstone, and greenstone. Disk stem and equal arm elbow types (Fig. 31, 7, 8, 10). Several unfinished limestone pipes (Fig. 31, 9).
12. Hammerstones of flint, sandstone, and limestone.
13. Granite celts.
14. Mullers (or gaming stones?), often bun-shaped, and made of quartzite and other tough crystalline stones.
15. Smoothing stones.
16. Mortars of limestone, sandstone, and quartzite. Evidence that some of these were used for grinding hematite.
17. Small, triangular pendants of hematite and catlinite (Fig. 34, 11 and 12).
18. Inscribed catlinite tablets (Fig. 34, 18).
19. Grooved mauls of quartzite. One only in excavations; several on surface.
20. Bison and elk scapula hoes, either unnotched or with shallow notches on anterior neck and glenoid cavity.
21. Flat, eyed needles of bone (Fig. 33, 11 and 12).
22. Split bone awls (Fig. 33, 8–10).
23. Polished bone tubes or beads of various lengths (Fig. 34, 13 and 14).
24. Small bone tools, possibly gravers (Fig. 33, 13).
25. Bone bracelets (?) (Fig. 34, 15–17). Slightly curved; perforated; possibly used as bracelets. No complete specimens.
26. Rib arrowshaft straighteners (Fig. 33, 3 and 4).
27. Long bone pins (Fig. 33, 7).
28. Antler projectile points (Fig. 33, 1 and 2). Socketed.
29. Perforated terrapin plastron (Fig. 33, 6).
30. Antler chipping tools (Fig. 33, 5).
31. Antler tapping tools.
32. Mussel shells with notched edges (Fig. 32, 10), and complete shells which may have been used as spoons.
33. Blue glass beads (Fig. 34, 10).
34. Copper cones or spangles (Fig. 34, 1–3).
35. Copper wire.
36. Copper rings (Fig. 34, 8).
37. Pieces of bracelets of copper or brass (Fig. 34, 9).
38. Copper tubes or beads (Fig. 34, 4–7).
39. Brass ear coils.
40. A few small fragments of unidentifiable iron objects.

The accompanying chart compares the culture of the Utz site with the Oneota manifestations in other states.

University of Missouri
Columbia, Missouri
May, 1941

	Minn. Oneota[21]	*Iowa Oneota*[22]	*Nebraska Oneota*[23]	*Ute Site*
I. SITES				
A. Area in acres		10–100	125	150
II. HOUSE STRUCTURES				
A. Earth lodge			X –	
III. CACHE OR REFUSE PITS				
A. Abundant	X		X	X
B. Predominantly bell shaped	X		X	X
IV. EARTHWORKS				
A. Burial mounds	X	X?	X?	
B. Circular, oval, rectangular or irregular enclosures		X		X?
C. Low mounds of refuse			X	X
V. BURIAL COMPLEX				
A. Location of burials				
1. In mounds	X			
2. Inhumation in cemeteries		X		X?
3. Intrusive in mounds built by earlier peoples		X		
4. At random on village site			X	X
B. Type of burial				
1. Primary, extended, supine	X	X	X	X
2. Secondary, bundle burial			X	
3. Primary, flexed, in storage pits	X			
C. Grave goods				
1. Pottery	X	X		
2. Few miscellaneous artifacts (points, pipes, shaft smoothers)		X	X	X
3. Caches of flint chips		X		X?
VI. POTTERY COMPLEX				
A. Paste and surface				
1. Temper is fine to coarse crushed shell	X	X	X	X
2. Surface smooth but not slipped or polished	X?	X	X	X
3. Color buff to dark slate gray	X?	X	X	X
4. Orange color			X –	X –
5. Painted (red hematite paint)				X –
B. Shape: wide or medium-mouthed olla, hemispherical or flattened globular bottoms, width greater than height, round or elliptical in cross-section	X	X	X	X
C. Rim shapes				
1. Flared	X	X	X	X
2. Recurved		X	X	X
3. Straight		X	X	X
D. Handles: two opposed, strap or loop, attached vertically from lip or rim to body, round or flat in cross-section, decorated or undecorated	X	X	X	X
1. Four handles		X	X?	X
2. Flared at rim or lip attachment		X	X	X
3. Width constant between attachments		X?	X	X
4. Notched rib running vertically from handle onto body			X	X
E. Two opposed lugs at right angles to handles			X	X
F. Areas of decoration				
1. Lip surface; shoulder; handles	X	X	X	X
2. Inner rim surface (chevrons; punctations)		X	X	X
3. Outer rim surface (incised lines; punctations)				X –
G. Decorative techniques				
1. Incised or trailed lines	X	X	X	X
2. Punctations	X	X	X	X
3. Finger impressions		X	X	X
H. Shoulder decorations				
1. Parallel or converging incised lines	X	X	X	X
2. Areas filled with punctations	X	X	X	X
3. Rows of punctations	X	X	X	X
4. Chevrons	X	X	X	X
5. Festoons			X	X
6. Spirals				X
7. Circular thumb-like depressions				X
8. Rectangle-within-rectangle				X
9. Concentric circles			X	X –
10. Cross			X –	

	Minn. Oneota[21]	*Iowa Oneota*[22]	*Nebraska Oneota*[22]	*Ute Site*
I. Lip decorations				
1. Notched diagonally or straight across		X	X	X
2. Punch marks			X	X
3. Finger-tip impressions widely spaced		X?		X
4. Crimped		X	X	X
5. Crenulated		X	X	X
J. Pottery cut after firing; large vessels cut in two			X	X
K. Perforated pottery discs				X
VII. CHIPPED STONE				
A. Small triangular projectile points, of flint, flat in cross-section, straight-based, finely chipped	X	X	X	X
1. Same, with concave base			X	X
2. Same, with convex base			X–	X–
3. Notched (two side notches)	X	X	X–	X–
B. Knives (large, various shapes)	X	X	X	X
1. Beveled on two or four edges			X	X
C. End scrapers (abundant, great range in size)	X	X	X	X
D. Awls (double pointed and simple)		X	X	X
E. Flint gravers			X	X
F. Large notched flint axes or hoes				X
G. Large oval flint tools (spades?)			X	X
VIII. GROUND STONE				
A. Polished celts		X	X	X
B. Crude grooved axes		X	X	
C. Grooved mauls		X	X	X–
D. Grooved club heads		X		
E. Hammerstones		X	X	X
F. Bun shaped mullers or gaming stones		X	X	X
G. Sandstone arrowshaft smoothers (sometimes paired)	X	X	X	X
H. Whetstones or abraders		X	X	X
I. Pipes		X	X	X
1. Disk stem type		X	X	X
2. Simple equal arm elbow type		X	X	X
J. Mortars		X	X	X
K. Small triangular hematite or catlinite pendants				X
L. Inscribed catlinite tablets		X–	X–	X–
M. Pumice (abraders)			X	X
IX. BONE TOOLS				
A. Bison or elk scapula diggers (notched or unnotched)	X	X	X	X
B. Simple split bone awls	X	X	X	X
C. Flat, eyed bone needles			X	X
D. Bone harpoons	X			
E. Bone bracelets (perforated ends)			X	X
F. Polished bone tubes or beads	X	X	X	X
G. Elk or bison rib arrowshaft straighteners		X?	X	X
H. Long bone pins	X		X	X
X. ANTLER TOOLS				
A. Cylindrical tapping tools			X	X
B. Socketed projectile points		X?	X	X
XI. SHELL OBJECTS				
A. Bi-perforated clam shells			X	
B. Notched clam shells		X?		X
C. Complete clam shells (possibly spoons)		X		X
XII. TRADE MATERIAL				
A. Brass ear coils		X		X
B. Blue glass beads		X		X
C. Long copper tubes		X		X
D. Rolled copper tubular beads		X		X
E. Copper cones or spangles		X	X?	X
F. Rings (Copper or brass)				X
G. Bracelets (copper or brass)		X		X?
H. Pieces of rusted iron objects		X		X

Key: X = present; X– = rare; X? = possibly present; blank means either absent or no data.

[21] Wilford, 1941. [22] Mott, 1938; Keyes, 1927, 1929, 1934. [23] Hill and Wedel, 1936.

TYPES OF ARTIFICIAL CRANIAL DEFORMATION IN THE EASTERN UNITED STATES

GEORG K. NEUMANN

IN ORDER to secure accurate information on the distribution of artificial cranial deformation, both in time and in space, as an aid to cultural reconstructions, and to the allocation of burials and archaeological features associated with burials, a series of diagrams[1] illustrating six types of deformation found in the eastern United States are given in Fig. 37. Another type, the lambdoid deformation of the Chaco Canyon region of New Mexico, is merely included for comparison with natural lambdoid flattening and obelionic deformation. All these finer distinctions of types of artificial deformation and a number of others have been previously recognized and have appeared in print, but only those that were found to be characteristic of groups of people have been accepted, thereby eliminating individual variations. No distinction has been made between unintentional and intentional deformation since it is often difficult to decide this question in series of crania of groups of people who deformed the skulls only mildly, nor are the various cradling practices producing the different types of deformation considered here. As detailed records on geographical distribution, time periods, and percentage counts of deformed crania are still very incomplete, only a small number of groups for which certain types of deformation are characteristic are given. The classification is based entirely on the regions of the cranial vault that have been affected.

Obelionic deformation (Fig. 37, 1) occurs between bregma and lambda with compensatory changes such as broadening of the vault in the anterior parietal and temporal regions. The plane of flattening

[1] I am indebted to the curatorial staffs of the U. S. National Museum, the University of Chicago, the Peabody Museum of Harvard University, the Museum of Archaeology of the University of Kentucky, the University of Tennessee, the Archaeological Laboratory of the Alabama Museum of Natural History, the American Museum of Natural History, and the Dickson Mound Museum, for their kindness in allowing me to examine their collections; the first four of the named institutions for the use of eight skulls for illustrative purposes; and to Dr. T. D. Stewart of the U. S. National Museum for the craniograph diagram reproduced as Fig. 37, 9 in this paper. The numbers of the skulls illustrated are: Fig. 37, 1—U.S.N.M. No. 345,889, male, Canal Point, Fla.; Fig. 37, 2—U. of C. No. T^{v}1–1, male, Tazewell County, Illinois; Fig. 37, 3—U.S.N.M. No. 327,101, male, Chaco Canyon region; Fig. 37, 4—P.M.H. No. 27,205, male, Brentwood, Tenn.; Fig. 37, 5 and 6—U.S.N.M. No. 115,464, female, Lynxville, Wis.; Fig. 37, 7—U.K.M.A. No. 22–17, male, Norris Basin, Tenn.; Fig. 37, 8—U.S.N.M. No. 243,051, female, Vicksburg, Miss.; and Fig. 37, 9 and 10—U.S.N.M. No. 362,447, female, Nachitoches, La.

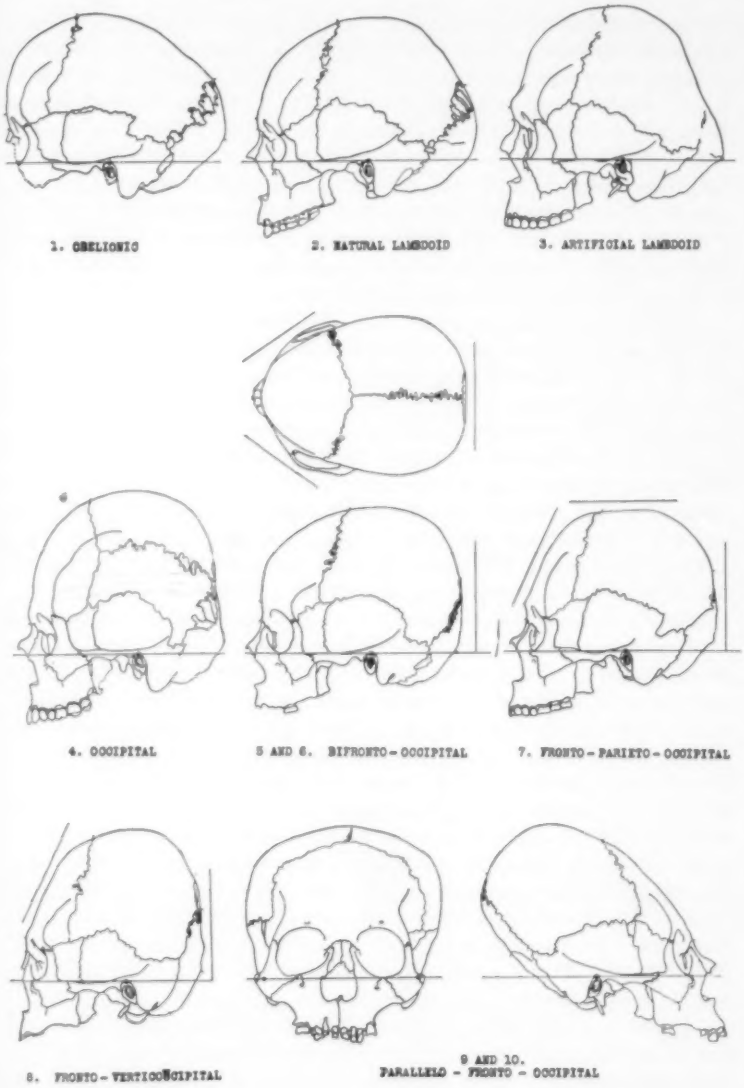


FIG. 37.—Types of Artificial Cranial Deformation in the Eastern United States.

forms approximately an angle of 30 to 40 degrees with the ear-eye plane. Obelionic deformation was first described by Stewart[2] and seems to be confined to southern Florida, for it has only been reported in a series from a shell mound at Canal Point on the northeast shore of Pelican Lake and in one skull from Demorey Key, Pine Island Sound (west coast). Since no cultural remains from the shell mounds from which both the series of crania and the individual skull came have been reported, their cultural affiliations have not been determined, and the temporal position of the horizon remains unknown. To one unacquainted with the detailed archaeology of the area it is difficult to understand Hrdlička's assignment of this series to the Calusa tribe.

Natural lambdoid flattening (Fig. 37, 2) has been illustrated here to give an idea of the degree of development of this morphological attribute and its intermediate position between artificial obelionic and lambdoid deformation when considered from the point of view of an angle formed by the plane of flattening and the ear-eye plane.

Lambdoid deformation occurs only in a mild form as an occasional individual variation in crania with simple occipital deformation in series from the southeastern states. In skulls from the Chaco Canyon region of New Mexico, as shown in Fig. 37, 3, the plane of flattening is inclined at an angle of 50 to 60 degrees to the ear-eye plane. It was first described by G. Retzius in a series of crania from the Mesa Verde.

Simple occipital deformation (Fig. 37, 4) is essentially at right angles to the ear-eye plane, is probably unintentional, often markedly asymmetrical, and generally does not involve the frontal bone. The earliest appearance of this type of deformation in the eastern United States is in crania from Adena sites in northern Kentucky and certain later Hopewellian sites in Illinois and Indiana. In general, it represents a late phenomenon associated with the development of the Mississippi horizons in the Southeast, which are estimated by various research men working with the material as after 1450.[3] Some later cultural manifestations in which this form of deformation predominates are the protohistoric Mississippi sites in eastern Tennessee, the Large-log town house horizon, the Tennessee-Cumberland sites, the Spoon River focus sites in central Illinois, which have been tentatively dated as between 1500 and 1600, the Madisonville site (ca. 1580–1680) of the Fort Ancient aspect in southwestern Ohio, and others.

Bifronto-occipital deformation (Fig. 37, 5 and 6) consists of bilateral flattening that produces a very narrow frontal bone associated with a moderate degree of vertical occipital flattening. To a certain extent, the

[2] Stewart, 1939*a* and 1939*b*.

[3] Griffin and Neumann, N. D.

frontal flattening compensates that of the occipital, resulting in vault diameters that are close to normal for the series. Hooton[4] first called attention to the narrow frontal bones and occasional slight occipital deformation in the Turner mound series, and Stewart[5] recently established it as a definite type of deformation associated with the Hopewellian culture, a complex that may conservatively be dated as somewhere between 1250 and 1450. The sites from which bifronto-occipital deformation has been observed are the Turner and Hopewell sites in southwestern and south central Ohio, a mound excavated by Thomas near Lynxville, Wisconsin, the Albany mounds in Whiteside County, Illinois, and a site near Kansas City, Missouri.

Fronto-verticoöccipital deformation (Fig. 37, 8) is characterized by flattening of the frontal, probably by means of a board, in conjunction with the simple vertical occipital deformation produced by tying the head of the infant to a flat surface. In the lower Mississippi valley the earliest record of this type of deformation is from the Cole's Creek horizon in Louisiana, which may carry it back to as early as 1450. In central Illinois it is characteristic of some of the Spoon River focus (Middle Mississippi) crania, in eastern Tennessee in those of the Large-log town house horizon, and in skulls from northern Kentucky at the Fox Farm (Fort Ancient aspect) site—all dating somewhat later, perhaps between 1550 and 1625. Finally, the practice of deforming the skull in this manner has been observed in crania from sites of cultural horizons that extend into the contact period of 1625 to 1675. Among these we may mention crania from Harrington's "Cherokee" period, a Creek series, and crania from late Middle Mississippi sites along the St. Francis River in Arkansas.

Fronto-parieto-occipital deformation (Fig. 37, 7) consists of flattening in three planes, nearly at right angles to each other, as indicated in the diagram of a skull from the Norris Basin. This form of deformation is sharply differentiated from the fronto-verticoöccipital type in that compensatory growth has taken place laterally instead of superiorly. This is another type of deformation that was recently recognized and described by Stewart.[6] According to all indications, this type of deformation seems to be confined to the territory occupied by the Cherokee in northern Georgia, eastern Tennessee, and western North Carolina; specifically, late Mississippi sites, dating perhaps between 1600 and 1675, sites in the Norris Basin, a late historic Cherokee site (occupied some time between 1725 and 1750) in eastern Tennessee, and the Peachtree site in North Carolina.

[4] Hooton, 1922, pp. 101, 107–108.

[5] Stewart, 1940, p. 15.

[6] Stewart, 1939*b*, p. 10; and 1941.

Parallelo-fronto-occipital deformation (Fig. 37, 9 and 10) consists of artificial flattening in which the occipital region is affected by placing a pad at the base of the occiput in such a manner as to produce rough parallelism with that of the frontal bone. Compensatory growth is to a large extent lateral as may be seen in the front view diagram of an historic Caddo female cranium from Nachitoches, Louisiana. This sort of flattening can be easily differentiated from the annular type in which the compensatory growth is entirely superio-posterior. Recently Goldstein[7] called attention to a subtype of this form of deformation in crania from Caddo sites in northeastern Texas. It differs from ordinary parallelo-fronto-occipital deformation in that there is a saddle-like depression just back of the bregma. In similarly deformed skulls of the Large-log town house horizon in eastern Tennessee the parallelism of the planes of flattening may only represent individual variations.

Museum of Anthropology
University of Michigan
Ann Arbor, Michigan
November, 1940

[7] Goldstein, 1940, pp. 312–313.

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THE ANNUAL MEETING

The next Annual Meeting of the Society for American Archaeology will be held in Cincinnati on May 8th and 9th, 1942. Members planning to attend and to present papers should notify Dr. Deuel before March 15th.

FACTS AND COMMENTS

WHAT ARE THE BURNT ROCK MOUNDS OF TEXAS?[1]

In the Edwards Plateau and Trans-Pecos regions of southwestern Texas are a large number of archaeological sites which have been referred to as "burnt rock mounds." Although this name is now well established in the archaeological literature of Texas, one looks in vain for a satisfactory statement concerning the origin and nature of these rather unusual sites. Quite a number have been excavated, but as yet few detailed reports on individual sites have appeared. The authors of recent reports assume that the term "burnt rock mound" is well understood and, although implying that it represents a distinct culture trait, do not explain what it means. It is evident that many archaeologists do not understand its meaning, for at recent archaeological meetings outside of Texas the writers of this paper have frequently been asked, "Just what is a burnt rock mound?" In view of this, it seems advisable to put on record a brief summary of what is known at present about the formation of these sites.

Burnt rock mounds are low eminences or knolls which are made up of thousands of densely packed angular fragments of limestone or other available country rock. They also contain varying amounts of soil, charcoal and ash, snail and mussel shells, animal bones, artifacts, and occasionally human burials. In outline, these mounds are circular or oval and, in size, they vary from a few square yards up to several acres. The thickness of the deposit also varies greatly, but even in the larger mounds it rarely exceeds six or eight feet.[2]

Some of the largest and best known of the burnt rock mounds are situated in the eastern part of the Edwards Plateau, notably along the Balcones escarpment. Here they occur in two different physiographic positions: (1) on bedrock or on residual soil near streams and springs, and (2) on the alluvial terraces of stream valleys.

Pearce, who excavated a number of these sites in the vicinity of Austin, published the first description of a burnt rock mound in 1919.[3] Neither Pearce nor those who follow regard these sites as mounds in the sense of having been purposefully constructed by man. All agree that the mounds grew by accretion incident to occupation. Pearce states:[4]

> The general contents of the mounds force the conclusion that they are largely kitchen-middens in origin. Limestone slabs were probably placed about fires to keep the fire together and for cooking and boiling water. After being heated a few times, a rain would cause them to break into small fragments that were no longer serviceable. These were then thrown back in a heap and new slabs placed in and about the fire. To the heap was also added the rejects and fragments from the making of flint implements.

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[1] The authors are indebted to the following for suggestions and beneficial criticism: Alex D. Krieger, Claude C. Albritton, Jr., J. Gilbert McAllister, and A. T. Jackson.

[2] The "ring mounds" or "sotol pits" constitute a special case and are not included in this discussion. These sites are confined largely to the Trans-Pecos region.

[3] Pearce, J. E., "Indian Mounds and other Relics of Indian Life in Texas," *American Anthropologist*, Vol. 21, No. 3, 1919. Pearce did not actually use the term "burnt rock mound" in print until 1932 ("The Present Status of Texas Archaeology," *Bulletin, Texas Archeological and Paleontological Society*, Vol. 4, 1932). Sayles ("Some Types of Archaeological Sites near Abilene, Texas," *Bulletin, Texas Archeological and Paleontological Society*, Vol. 1, 1929) appears to have been the first to make published use of the term, and he was followed by Wilson ("Burned Rock Mounds of Southwest Texas," *Bulletin, Texas Archeological and Paleontological Society*, Vol. 2, 1930). Since then the name has been used by all who have had occasion to refer to the sites.

Pearce (*op. cit.*, 1932) referred the burnt rock mounds to a "Texas Kitchen Midden culture." Sayles ("An Archaeological Survey of Texas," *Medallion Papers*, No. 17, Globe, Arizona, 1935) assigned most of the burnt rock mounds of the Edwards Plateau and environs to an "Edwards Plateau culture"; others he linked with a "Wichita phase."

[4] Pearce, *op. cit.*, 1919, p. 230.

The limestone referred to is derived from Cretaceous formations which crop out extensively over the Edwards Plateau.[5] The dark gray color of the limestone fragments from the mounds is due to contact with fire, and the angularity is a result of thermal fracturing. All of the evidence supports Pearce's conclusion that burnt rock mounds are accumulations of hearthstones. However, Pearce does not explain why hearths should continue to be built in the same places, so that burnt rock *mounds* would be formed. Wilson[6] accounts for all burnt rock mounds in terms of their use in the preparation of sotol for food, but this hardly explains why the same places should be used continuously or repeatedly. Furthermore, sotol does not grow in the eastern part of the Edwards Plateau, where some of the largest burnt rock mounds occur.

Recently considerable light has been thrown on this problem by a WPA-University of Texas archaeological project that has been excavating in the Marshall Ford Lake Basin of the Colorado River near Austin.[7] Most of this work has been in sites where mounds are associated with alluvial terraces. Special attention has been devoted to the location and exposure of hearths, which are the basic units in burnt rock mound construction. The vertical face method of earlier mound excavation has been modified to include a certain amount of stripping or peeling of the mound from above. This variation in technique has yielded good results, for in many places, both in mounds and in nearby buried campsite levels, intact and disturbed hearths have been observed.

Hearths in burnt rock mound sites were made in various ways. The most elaborate examples were made by lining small oval or circular depressions with flat stone slabs, which were subsequently broken by heat into many angular fragments. Simpler varieties were made by scooping a small cavity in the silt or sand and placing large stones around it to hold the fire, or by merely placing stones in a circle or oval around a fire built on the undisturbed surface or on a flat stone slab. In the later stages of site occupation, hearths seem to have been made by scooping out a shallow pit in the debris of previous hearth linings. In one case, several dozen unopened mussel shells were discovered in a shallow concavity beneath a cluster of fire-cracked stones. Fragments of bison bone were found in other hearths. This would indicate that hearths were used principally for baking and roasting. However, in some instances it appears that stones were placed directly in the fire. This may have been done to extinguish or bank the fire, or to heat the stones. The latter suggests the possibility of their use for stone boiling, but it is difficult to see how limestone would serve this purpose.

Familiarity with these methods of hearth construction makes it easier to understand the jumbled and more or less homogeneous appearance of a mound in cross-section. Prolonged or repeated heating caused the hearthstones to break up into many angular fragments. The hearths were then cleared of old stones and relined, or else abandoned. Later, other hearths were built in the same area, the result being a complex assemblage of superimposed and intersecting hearths. This element of human disturbance is of course an important factor to consider in connection with the problem of cultural stratigraphy.

The key to the problem of burnt rock midden formation has been obtained through the excavation and analysis of archaeological materials buried in the alluvium of terraces on the Colorado River. In the Marshall Ford Lake Basin area all burnt rock mounds observed in association with terrace deposits occupy the same physiographic

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[5] East of the Edwards Plateau rock outcrops are less common and burnt rock mounds are rare. There appears to be a close relationship between the availability of stone and the formation of these mounds.

[6] Wilson, *op. cit.*

[7] This project is under the direction of the senior author. A report on the work is planned, but considerable time must necessarily elapse before it will appear.

position—namely, in the uppermost levels of the forty-foot terrace of the Colorado River (Fig. 38, A).[8] Developmental stages of mound growth are often included in the lower levels of the same terrace. Three stages have been distinguished (Fig. 38, B):

1. Scattered hearthstone fragments and artifacts (lower levels). In the lower strata of the forty foot terrace, washed artifacts and isolated hearthstone fragments occur as incidental inclusions in the alluvium (Fig. 38, B, *a*). This may be explained by pointing out that the terrace surface at that early stage was a low, swampy flat near the stream and was thus subject to frequent flooding. The hearthstones and associated debris were scattered by overflow waters. Camps at this time were occupied for only short intervals, since floods would force their abandonment. From this it may be seen that complex deposits of camp debris could not form under the conditions present at that stage of terrace development.

2. Campsite areas (intermediate levels). As the terrace was built up, the surface became higher relative to the normal stream level and hence was more attractive as a camping place for man. Excavation shows that the intermediate strata include well-defined campsite levels at various depths (*b*, *c*). These camp levels consist largely of rock-lined hearths, artifacts, and flint chips scattered over the former terrace surfaces. Apparently, occupation of the lowest of these levels (*b*) was at a time when the flat was still low enough to be subject to frequent flooding and sedimentation. The hearths in these lowest levels do not show any clear signs of prolonged use, and they are separated by layers of silts and sands which are largely barren of cultural materials. As the terrace became still higher, floodings were even less frequent because of the greater elevation relative to normal stream level. During this stage there is evidence which indicates periods of considerable length when conditions were more or less stable (Black Humic Silts), and there is also evidence of erosion (Erosion, *d*). Thus the campsites at these higher levels in the terrace were subject to longer periods of continuous or intermittent occupation. Such camp levels as are here described present a complex picture of hearths in all stages of use and dismantlement, forming areas littered with innumerable discarded angular hearthstone fragments, animal bones, mussel shells, flint chips, and artifacts. In the upper strata of the terrace, such complex levels are separated by very thin layers of silt (*e*). Eventually they assume topographic prominence and become, in effect, proto-middens or small mounds.

3. Burnt rock mounds (upper levels). Still higher, in the very uppermost levels of the terrace, certain areas were so continuously or repeatedly occupied that the low mound thus formed (*f*) was not covered by the ensuing sedimentation in flood years and thus remained as a rocky area projecting above the flats. Being extremely porous, the mound was well drained and never waterlogged. Its desirability as a habitation area was thereby enhanced, and consequent hearth levels continued the process illustrated in the levels below. During this late stage, hearths seem to have been built in compact circular or oval groupings. This may indicate family groupings, separate occupations by small groups, or the influence of some natural feature. Certainly in the uppermost levels these grouped areas seem to recur with some consistency one above the other. At one site the midden edges dropped so abruptly that the influence of some natural phenomenon must be considered. It may be suggested that the more or less static conditions of the upper terrace levels were conducive to heavy vegetational growth, such as forests or thickets, and that natural or artificial clearings, persistent from dry year to dry year, were utilized for camp areas.

[8] Jackson, A. T., "A Deep Archaeological Site in Travis County, Texas," *Bulletin, Texas Archeological and Paleontological Society*, Vol. 11, 1939. The deeply buried site described by Jackson lies in the same terrace. Similar sites have been excavated recently.

In this way, the present surface features known as burn rock mounds were formed on alluvium along the streams. In the light of the last stage just described, it can readily be seen how burnt rock mounds could develop on bedrock or residual soil near streams and springs. Such sites would not be affected by alluvial sedimentation. Occupation of the same spot here may have been due in part to the better drainage afforded by the porous midden material.

In summary, it may be stated that burnt rock mounds were developed by the use and re-use of favored areas for the building of stone-lined hearths. In the lower levels of stream terraces, hearths were covered by the silts of the aggrading stream as soon as abandoned. In later stages, the terraces were higher relative to the streams, floods were rarer, and hearths of one occupation were intruded into or placed directly upon those of earlier occupations that had not yet been covered by flood plain silts and sands. The probable location of such complex camp levels in forest clearings, together with the enhanced attraction of the elevated rocky areas in muddy terrace flats, resulted in the superposition of many such camps and the development of the typical burnt rock middens. Sites not affected by sedimentation developed as in the last stages of terrace occupation.

It should be noted that pseudo-middens occur in eroded areas (Fig. 38, B, *d*), either modern or dating from previous erosional epochs, where hearthstone fragments and artifacts derived from the dismantlement of eroded hearths are collected in depressions. The origin of these pseudo-middens is thus entirely different from that of the true middens; they represent the redeposition of midden materials at lower elevations.

Earlier ideas as to the formation of burnt rock mounds have been confirmed and elaborated. Since the burnt rock mounds associated with terraces occur only under certain physiographic conditions—conditions that were existent only at a given stage in the physiographic history of the region—it seems probable that they belong to one period in the regional chronology and were all roughly contemporaneous in their development. The geological evidence does not indicate any great age. Inasmuch as the artifacts found in the burnt rock middens that are not associated with terraces are essentially the same as those in mounds and campsite levels which are so associated, it may be possible to key all of these sites into the same stage of physiographic development of the Colorado River Valley. Broad correlations with cultures represented in the terraces of other major streams in the region may be possible. This possibility should be kept in mind by Texas archaeologists.

Obviously the burnt rock mounds were not purposefully constructed and do not in themselves constitute a culture trait. Emphasis should be placed on the building of hearths as a trait, not on the mounds or middens, which are by-products of hearth construction.

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STONE MORTARS OF CONTRA COSTA COUNTY, CALIFORNIA

Contra Costa County lies east of San Francisco Bay, between the southern shores of San Pablo Bay, Carquinez Straits, Suisun Bay and the San Joaquin River, on the north, and Mount Diablo on the south. This peak, the highest of the many ranges of hills, reaches an altitude of 3800 feet. The terrain is very diversified. As to prehistoric inhabitants, Kroeber places the entire area in Costanoan territory, while Schenck mentions the Yachicomnes, etc., names, perhaps of Spanish invention, which mean nothing.

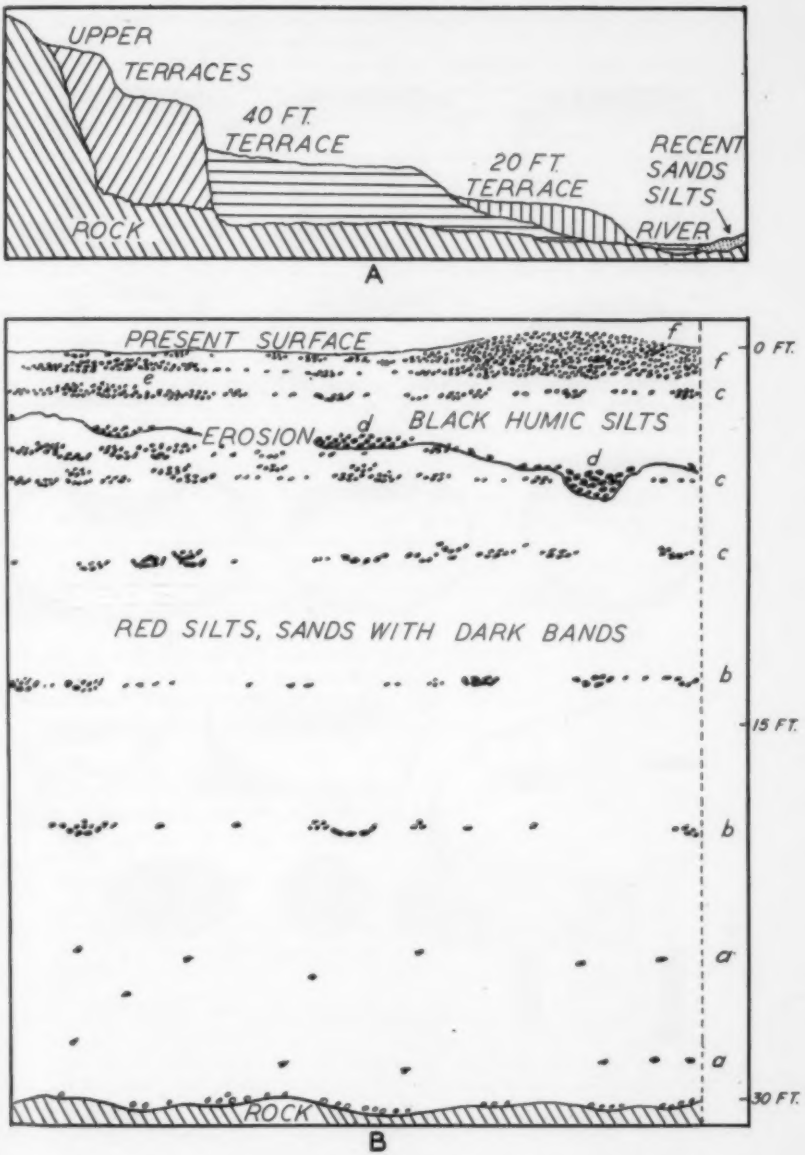

FIG. 38.—*A*, Colorado River in Marshall Ford Lake Basin, Texas, schematic cross-section of valley and terraces. *B*, idealized section from forty-foot terrace.

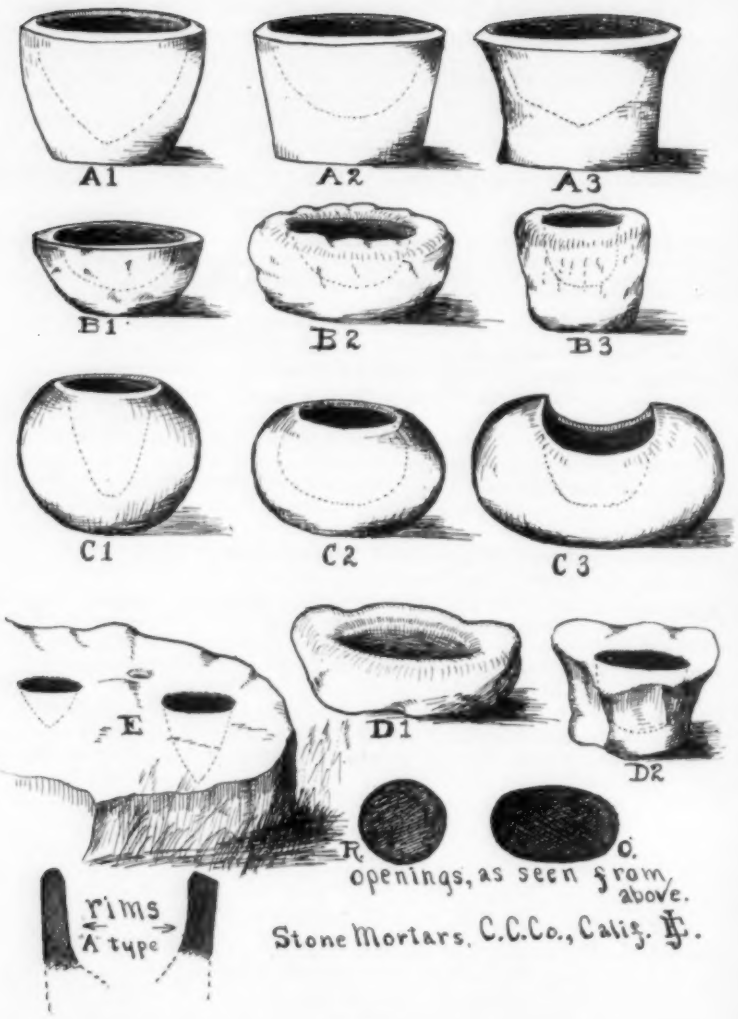
A1
A2
A3
B1
B2
B3
C1
C2
C3
E
D1
D2
R
O.
openings, as seen from above.
rims
A type
Stone Mortars. C.C.Co., Calif. F.

FIG. 39

Perhaps Mutsun was the principal dialect spoken, though either the Plains Miwok or the Yokuts may have occupied the eastern section.

Different tribes undoubtedly made and used the same types of mortars, as is attested by the prevalence of killing in one mound, and absence of this trait in another. There is also the possibility that some of the finely worked specimens were trade articles, as they are found at considerable distances from the source of their materials.

Material used falls into two main classes: hard, represented by basalt; and soft, represented by sedimentary stone. And here we encounter an anomaly, for most unshaped boulder specimens, with rough exterior, are of sandstone of various degrees of hardness, while practically all the finely sculptured specimens are of hard, tough basaltic lava. One would presuppose a tendency to use the more easily worked sandstone for the difficult task of shaping, but there must have been a motive in choosing the harder material, perhaps in consideration of the longer service to be obtained from the finished article. Another anomaly is seen in that, at the edge of the Delta region at the eastern end of the area, twenty-five miles or more distant from the nearest source of basalt, most of the mortars are of basalt, while at several foothill sites within a few miles of basalt ledges, the predominant material was sandstone. Perhaps the inhabitants of these sites, however, used the conveniently adjacent bedrock type of mortar for most of their grinding, while the Delta winter village sites had no stone whatever, necessitating a portable type of mortar.

Undoubtedly the main purpose for which these mortars were used was for the grinding of the abundant acorns. Seeds of various kinds were also ground, for both seeds and acorns are found carbonized in the funeral burnings. Perhaps the fleshy root of the tule reed, which is used elsewhere, was also used here.

To facilitate future reference to types, I here present for approval, a system of classification, which is modified from that used by Lillard, Heizer and Fenenga.[1]

Exterior:

- A. Fully sculptured exterior
- B. Modified exterior, showing some intentional shaping
- C. Selected, naturally shaped boulders or pebbles
- D. Unshaped, or shapeless, boulders or slabs
- E. Non-portable mortars, in bedrock

Interior:

- U. Rounded bottom
- V. Pointed bottom, perhaps from use
- Y. Bottom obviously intentionally sloped to center
- X. "Olla" type interior

Shape of Cavity Opening:

- R. Round, circular
- O. Oval, elliptical

For modifications within these categories, designated by numbers, see Fig. 39.

Under this system any mortar may be fully described as easily as we refer to an arrow point as of type NAb1 or SCa2. Thus, the top left-hand mortar in Fig. 39 is type A1VR, etc.

Distribution of the A, or sculptured, types extends over the entire lowland area. Few other types are present at the east end, near the Delta. Here, also, I find no evidence of activity in the manufacture of these artifacts, but at the Maltby-Concord valley site I have found boulders and chips of basalt; elongated, roughly spalled pieces resembling

[1] *An Introduction to the Archeology of Central California.* Bulletin 2, Department of Anthropology, Sacramento Junior College, Sacramento, 1939.

pestles in the making; and many heavy hammerstones of hard materials, quartz, chalcedony, and a greenish metamorphic rock which I cannot identify. The latter weigh from a few ounces to six or eight pounds, and exhibit evidence of extremely long and hard usage. The site may well have been a manufacturing center for mortars.

Some finely shaped sculptured specimens have only a pecked exterior finish, while a few still retain scars from the removal of large flakes or spalls in shaping. Many, however show evidence of infinite patience and industry in the careful smoothing of the tough, hard basalt. Of course this finishing may have been carried on over a period of years on the same object, taking advantage of the long, idle winter months. At the Maltby site there are many pestles with one side flattened as from use as a rubbing or smoothing implement.

The interior cavity perhaps required more painstaking care than did the exterior, for here was a surface which could not be attacked from all angles, nor could spalls be knocked off. The gradual thinning of the walls presented some hazard in regard to breakage. Here could be left no rough surfaces or protruding angles. In bedrock, and likewise in pebble type mortars, we find many small "cups" which no doubt represent the beginning of a mortar hole, but no sculptured mortar I have seen has had anything but a fully finished interior. To be sure, the size of the cavity in relation to the bulk of the entire mortar varies, and I think this can be explained by the intentional leaving of a thick bottom to allow for long wear. Some mortars have bottoms four or more inches thick, while it is no unusual occurrence to find others which have been worn completely through.

Lillard, Heizer and Fenenga correlate their mortar and pestle types on the basis of similarity of the distal end of the pestle and corresponding roundness or acuteness of the mortar cavity bottom. No doubt, gradual wear determined one or both factors in a much-used mortar, yet we must consider the fact that in a newly manufactured mortar, the maker either shaped the bottom to fit a previously used pestle, or made a pestle to fit the mortar. However that may be, we do find definitely associated mortars and pestles that do not "fit." Some of these pestles were undoubtedly used in wooden mortars which have long since disappeared, while others were no doubt carried on the annual acorn gathering visits to the adjacent hill country where they were used in the bedrock mortars.

If we knew something of the technique employed in reducing acorns to meal in these prehistoric mortars, we could more easily interpret these diverse mortar and pestle types; but we do not know what method was used, and no living Indian seems able to cast light on the subject. Some of them even deny that the Indians made these mortars, and attribute their origin to the ubiquitous Coyote. The modern Miwok woman pounds acorns in a bedrock mortar with an oval, round bottomed interior, using a thick, heavy pestle in both hands, and always keeping one or two inches of acorn material between the pestle and the bottom of her mortar, so that stone never strikes stone. It is very difficult to visualize the efficacy of a pestle two or three inches in diameter when used in a mortar fourteen or sixteen inches in diameter, yet we find no other implement that might have been used. The capacity of A type mortars varies from a scant quart to five gallons.

The out-sloping rim of practically all type A specimens, a feature hard to understand, must be a pattern which has been adopted as the outgrowth of much experience gained in the manufacture and use of these utensils over an immense period of time. It may have the effect of minimizing chipping or breakage of the rim, but a rounded edge, such as the few exceptions possess, would seem to be a still greater safeguard. This out-sloping rim has, in one specimen from Hotchkiss mound and one from the fifty-mile-distant Emeryville mound, been decorated with square-cut, centrally perforated, thin sections cut from the walls of Olivella shells, and attached with asphaltum. Side wall thickness at rim of

type A specimens is from less than an inch in small specimens to more than two inches in large mortars.

The inner edge of the cavity at the rim of all specimens, regardless of type, exhibits a smooth, well worn bevel also. A straight line extended downward on the plane of this bevel will strike the approximate center of the cavity. The frequent leaning of the pestle against the edge has been suggested as the cause of this wear, as has also the rotation of the pestle around the edge in a stirring motion. However, most pestles are made of a softer grade of stone than the mortars, and they do not show the corresponding wear which would inevitably result. But the well-worn bevel is there, and it also represents some definite method in the use of the mortar.

The V type bottom can be easily postulated by the natural wear resulting from the striking of the pestle repeatedly near the center of the cavity, and of the mortars that are worn through, the greater number present this type of bottom contour. All Contra Costa bedrock mortars that I have seen have this type of bottom, some of them very acutely pointed, as are some of the abnormally long pestles that seem superfluous for use in portable mortars. I have seen bedrock mortars twenty-four inches deep, and pestles twenty-seven inches long. The great depth of these bedrock mortars perhaps means that they were used annually over a period of many years, and that the acorns gathered nearby, or at least a portion of them, were reduced to meal before being transported to the winter village.

The Y type bottom is another feature of these utensils, the significance of which is obscure. In some specimens, this appears to be the original bottom of a newly manufactured mortar, showing little sign of use. The wide, sloping, flat surfaces, sloping gently to the center from the base of the side walls, could have been used to grind seeds upon, as a metate is used, but we find no mano or muller to indicate such use. Other mortars of this type show a definite cup in the exact center, while the space between the cup and the side wall shows a surface with little wear. I think the probability is that these sloping surfaces formed a hopper for the material being ground, just as the basket hopper on the slab is used in Northern California, or was used by the prehistoric Chumash. Of these basket hopper mortars I have found no evidence here.

The type shown in Fig. 39, C2, which I will call the olla type, is a rare but definite type, I having myself seen several specimens coming from foothill sites. Its peculiarity lies in the fact that the inner walls of the cavity flare outward a short distance below the opening, making a cavity of larger diameter at this point than at the rim. Type C4, which resembles a deeply worn metate, is a true mortar, showing wear from pounding and no sign of striation as in a metate, and we do find pestles with a corresponding thick, very slightly rounded distal end, conforming well to these shallow cavities.

Killing seems to have been applied more to the sculptured type than to others generally. In Concord valley, all A types were killed, while at Hotchkiss, few were so treated. At Viele tract mound, only five specimens, all of type A, were killed. At foothill sites, no type A mortars were seen, and many of other types were killed. In Concord valley, many types other than the A types were intact: many times they were inverted over the skull of the burial they accompanied.

As to the age of these mortars, we have little data. Nelson[2] found them at all levels of the Ellis Landing mound, which he believed to be perhaps 3000 years old. Schenck, at Emeryville,[3] makes the more modest estimate of 1000 years, but he speaks of mortar fragments being found at the lowest depths, and concludes "that they were used very early in the mound's history, perhaps at its very beginning, and . . . that they were used

[2] Nelson, N. C., University of California Publications in American Archaeology and Ethnology, 1910.
[3] Schenck, W. E., University of California Publications in American Archaeology and Ethnology, 1927.

by a people familiar with them before they settled here." The east end Delta sites, yielding the most type A specimens, belong to Lillard's Late horizon, Phase I and II.[4] No definite date has been assigned to these cultures, but they perhaps extend back hundreds of years. At Maltby Concord, type A fragments were found associated with definitely Transitional bead types, but at no great depth. Neither Schenck nor Nelson state which of their types were deepest. At any rate, there is no doubt whatever that the finely sculptured specimens are purely Indian, both in conception and in their execution, as there is also no doubt whatever that they were made and used long before any white man reached America.

Oval cavity openings or interiors are never found in A type mortars, but are not unusual with other types. It is my experience that any of the interiors shown in Fig. 39 may accompany any A type exterior. The classification described here is based on my own findings and further research may easily reveal discrepancies. It may, however, serve as a working guide to mortar types.

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ON "AN INTERPRETATION OF THE PREHISTORY OF THE EASTERN UNITED STATES"

The article, "An Interpretation of the Prehistory of the Eastern United States," by J. A. Ford and G. R. Willey in the 1941 *American Anthropologist* inaugurates an epoch. At last we have an interpretation of the archaeology of most of our East which is definite, evidential, and sequential.

Eastern archaeology has developed its generalized findings very slowly. It is almost a century since Squier and Davis published. The cultures are undoubtedly hard to interpret. Their remains are such as to call both for quantities of finds and for fine discriminations in relatively low-quality material. Nevertheless, venture at broader but substantiated understanding has been less than the difficulties warranted. The systematic or McKern classification has been extremely valuable; but at its rate of progress, a quarter century or more might have elapsed before classification was converted into chronology.

What Ford and Willey have done is to build a scheme out of an interweaving of specific local data. They place not only "cultures" but sites and their levels into a larger plan which makes meaning. Now that it is done, one wonders why it was not done before. Perhaps their primary experience with the Southeast was fortunate. If their opinions are correct, the thorough work in Nebraska, Wisconsin, Illinois, Ohio, and New York proves to have been done at the peripheries. The Government Relief archaeology carried on in the Southern States in recent years has perhaps been decisive through centering in the crucial area.

How much of the Ford-Willey interpretation will stand is for professional Eastern archaeologists to decide. At some points it will no doubt be revised as well as supplemented. The main question is not how much it will be revised, but how much of the essential fabric of the scheme will be accepted and stand. The writer's opinion is that most of it will survive: it seems to subsume the facts reasonably and coherently, and to accord with archaeological experience elsewhere. He expects that this piece of work will prove to have a fundamentality for its area like that of Kidder's Southwestern Archaeology nearly twenty years ago.

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[4] Lillard, Heizer and Fenenga, *op. cit.*

BOOK REVIEWS

Essays in Historical Anthropology of North America. (Smithsonian Miscellaneous Collections, Volume 100, pp. 1–600. Washington, 1940.)

These reviews are by various individuals, as are the chapters in the Swanton Volume. Besides the contribution reviewed below, the volume contains an appraisal of Swanton's work by A. L. Kroeber, a bibliography of Swanton's paper by Frances S. Nichols and an introduction by J. H. Steward. The volume stands as a fitting tribute to one of the outstanding scholars of American Anthropology.

Some Historical Implications of Physical Anthropology, T. D., STEWART, pp. 15–50. Perhaps nowhere in the sphere of anthropology as a whole have the fields of human biology, archaeology, and ethnology so much of common interest as in problems of historical anthropology. In his paper of the series, Dr. Stewart points out how the physical anthropologist might contribute to the solution of historical problems in a number of ways: namely, the utilization of evidence from the distribution and replacement of physical types, from artificial cranial deformation, and from the occurrence of syphilis in American Indian skeletal material. A valuable contribution made in this paper consists of a compilation of a comparative table and a map showing the distribution of Hrdlička's mean height index for North America. However, its diagnostic value in replacing the length-height and breadth-height indices still remains to be demonstrated. The observation that in the eastern United States artificial cranial deformation represents a relatively late phenomenon, first associated with crania from the Hopewellian horizon, is born out by all available evidence. As to the earliest appearance of syphilis in North America, its occurrence is said to rest with the age determination of the Hopewellian culture. In my opinion its age, especially in cases in which lesions produced by this disease can be more definitely identified, seems to correspond more closely to the problems of dating of various Middle Mississippi manifestations.

GEORG NEUMANN
University of Michigan

Developments in the Problem of the North American Paleo-Indian, FRANK H. H. ROBERTS, JR., pp. 51–116. This is another one of Dr. Roberts' résumés and summaries for which he is justly renowned. It is this type of material which proves itself of inestimable value in grasping the present status of a complex situation and scarcely any exists with more complexities than that of the Paleo-Indian. Dr. Roberts is qualified beyond others to formulate such a résumé because of his wide background and studies of Early Man and especially because of his recent work at the Lindenmeier site.

In a lucid but short introduction complete with outline map showing location of major sites involved, Dr. Roberts gives the background of the question of the Paleo-Indian, especially as to vogues and trends in the study of the same, an evaluation which so many miss entirely in estimating scientific data. In the body of the work, the various facets of the question of the Paleo-Indian are viewed, reviewed, and evaluated in turn. The familiar question of the Folsom, and the less familiar one of Yuma connections, are clearly stated. Much of the confusion which has surrounded the Yuma problem is clearly brought to light by Dr. Roberts' very thorough perusal of the widely scattered literature on the subject and his deductions from the same. This is to be regarded as the last word on the much-confused Yuma question. Gypsum Cave, Signal Butte, Sandia Cave, Central Texan, West Texan and Trans-Pecos, Cochise, California, Oregon, Utah, and Wyoming finds are each taken in turn and treated in the same manner.

Especial mention must be made of another center of confusion discussed in this

paper: that of the Abilene-Clear Fork question. Doubtless many students have heretofore been at a loss as to the exact status or connection between these two problems. It is clearly, and to my mind correctly, stated herein. Dr. Roberts' treatment of the Cochise center of southern Arizona is extraordinary, especially from a Southwestern point of view, where this culture has received wide acceptance. Arizona contingents have, as a matter of fact, reared a whole sequence of finds, non-pottery bearing in nature, with the Cochise as the keystone of these. Dr. Roberts concludes that there is a desirability for more convincing evidence both archaeologically and geologically before wide acceptance may be established.

The discussion of the Paleo-Indian is complete with final sections on human skeletal remains and the time and routes of migration of Early Man. The summary of actual remains of the Paleo-Indian indicates our remarkably scanty knowledge of the physical make-up of that type or types. Two routes of migration are postulated for these first immigrants, one down the eastern slopes of the Rockies, and the other down the plateau between the Rockies and the Coast Range.

This whole paper is to be regarded not only as an admirable compilation of the scattered data already available on the subject, but also as an invaluable addition in the form of an evaluation by an author who is competent to so judge. It is the final shattering blow to any of those who yet doubt that there was a Paleo-Indian.

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The Historic Method as Applied to Southeastern Archaeology, M. W. STIRLING, pp. 117–125. In this article only two cultural complexes in the Southeast are recognized. The first of these is the hunting-fishing shell mound folk and "the relatively recent agricultural period, featuring the manufacture of ceramics and the building of mounds." Stirling's present search in Mexico for the origin of this southeastern culture will no doubt provide interesting and valuable information. Is it not possible that some of the specific elements or concepts of culture in the Southeast which are strikingly Mexican were indeed brought into the area, but in post-DeSoto times as Mrs. Nuttal suggested?

A number of postulates are put forth that will need to be tested: (1) that Moundville is Caddo; (2) that the Muskhogean stock came into the United States from south of the border; (3) that there is no proof of cultural exchange with the Antilles; and (4) that various protohistoric sites from Mississippi to the northern Gulf Coast of Mexico are close to Fort Ancient culturally and represent the movement of Siouan people "historically" out of the Ohio Valley.

The "typical mound material of the Southeast" is recent even without a yardstick of Mexican Chronology. Now, Ford is not sure his "Tunican" complex is actually Tunican.

Virginia before Jamestown, DAVID I. BUSHNELL, JR., pp. 125–159. This is an able summary which deals mainly with Bushnell's research into Virginia's prehistory over a period of years. He first discusses the locations and culture of the tribal groups within the various linguistic stocks; then the protohistoric archaeological sites and, finally, the prehistoric occupancy. Bushnell's archaeological work has largely been in the form of surface collecting and searching for the location of early historic sites. It is highly desirable that the distinguishing archaeological traits of the various historical tribal groups be clearly defined so that they may be compared with each other and with the prehistoric remains in the area. As a result of such a study, it will be possible to compare the archaeological material which will be found to be Virginia Piedmont Siouan with that of "the builders of the majority of the great earthworks, so numerous in the southern part of the State of Ohio and across the river in northern Kentucky." Unfortunately, Bushnell has

never realized that the Fort Ancient culture, thought by some to be Siouan, had nothing to do with "the great earthworks" which are Hopewellian and that the Virginia Sioux were contemporaneous with the Fort Ancient Aspect.

While the mounds of the Piedmont slopes may be Siouan, this has not been demonstrated. The drawing of a basketry impression on a sherd from Nandtanghtacund suggests a plain plaited fabric instead of coiled basketry. The sherds from this area of this type are probably not impressed with coiled basketry. The majority of Bushnell's conclusions may be regarded rather as "speculations" which should be tested in the light of future work.

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Problems Arising from the Historic Northeastern Position of the Iroquois, WILLIAM N. FENTON, pp. 159–251. As Fenton concludes: "despite the large amount of historical and anthropological attention that the Iroquois have received, they remain improperly understood" (p. 243). Fenton begins his paper on the problems that are still unsolved, although of major importance, by sketching the work of previous generations of anthropologists among the Iroquois. As a member of the fourth generation, he states the steps necessary to be undertaken by the coordinated efforts of the disciplines of ethno-history, ethnology, linguistics, archaeology, and physical anthropology to solve the problems of the Iroquois cultural position.

The direct historic approach is suggested, that these future studies may be coordinated toward a common end, and it is recommended that these studies proceed from known Iroquois groups to unknown cultures. To further this end, Fenton has delved into the historical source material to sketch the locations and movements of the different Iroquoian groups. He has avoided most of the errors that have achieved respectability by their antiquity and their repetition, and produced an account that is both clear and quite accurate. However, there are some omissions of importance and errors in details that should be corrected before this essay be taken as a basis for further studies. The contact with Siouan peoples from the southeast and those that resided in the Ohio valley according to Swanton's hypothesis should be critically examined (p. 198). Other statements should likewise have been considered more carefully. An example of this is the Iroquois claim to the region north of Lake Huron and west to Lake Michigan in 1755 (Fig. 14). The Iroquois claimed that territory as early as 1701 acting under the inspiration of the English who wished to block Cadillac's establishment at Detroit, but in fact it was not healthy for them to enter the greater portion of it and it was actually in the possession of the French and their Indian allies. The distinction between "the Ojibwa proper" and "the Chippewa or Missisauga of Lower Michigan and southeastern Ontario" is novel to say the least.

The essay is a fine presentation of the need for more work and more critical and coordinated work in the northeast. It is the hope of the reviewer that the author carries on.

VERNON KINIETZ
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Archaeological Perspectives in the Northern Mississippi Valley, F. M. SETZLER, pp. 253–291. This is the first published synthesis of northern Mississippi Valley cultures since Shetrone's *Mound Builders*, and as such is a valuable contribution to eastern United States archaeology. It presents a summary of "the more significant prehistoric manifestations" of the area, lists significant traits of certain complexes and arranges them in the McKern Classification and in a relative chronology. There is an excellent selected bibliography arranged by author, by culture group and by states, and three maps are in-

cluded which give the distribution of Hopewellian, Adena, and Middle and Upper Mississippi sites.

The McKern Classification employs a four-fold division, not five, since a component is a focal unit at one site. Components are not always "individual sites" as more than one component can be found at a site.

While it is admitted that prehistoric cultures "must be based on more than one cultural element . . . fluted Folsom points" from this area are the sole evidence given for "the earliest evidence of man in the Mississippi Valley." A truly early horizon in this area which is connected with the Indian Knoll Aspect is not included in the discussion. An "Agpo" base is a convenient philosophical abstraction and is founded on the assumption that pottery and agriculture are inseparably linked traits. Setzler begins with the Hopewellian phase as "the earliest agricultural manifestation within the northern Mississippi Valley" for in spite of the "Agpo Base" on the chronology chart, and his belief in an early "but highly developed group" in the Ohio Valley "no pre-Hopewellian Agpo culture has yet been found." There are other explanations of Adena-Hopewellian-Woodland relationships as Setzler points out, and it is to be hoped that they will soon appear in print. Why the non-floral traits listed are thought to have "originated in the south" is not stated. The statement that we have no means of knowing whether the complicated Hopewell ceramic decoration originated in the north or in the south is certainly true, even though much of this special ware is found on Marksville sites. In contrast to the views of Setzler and Ford, the connection between the Marksville focus and the Hopewellian phase can be viewed as one of culturally connected contemporaneous groups which is evidenced by the common possession of identical types of complex artifacts and of similar concepts.

Copena, also, not only has pottery (not as part of the mound burial complex, however), but is probably contemporary with Hopewell, Marksville and Swift Creek. In justice to Setzler, this view has not yet appeared in print, although it has been known since 1937.

Setzler's list of traits are characteristic of Hopewellian, but they are not diagnostic since the majority are found in other cultural divisions. Corn is said to have been found at Harness by Mills and near Kansas City by Wedel.

A statement, such as "Hopewellian materials have been related to other cultures in a time sequence only in the south," ignores the data available from New York, Ohio, Illinois and Wisconsin. Reference is made to "the occurrence of cord-marked pottery in a few Hopewellian sites in the north." Records in the Ceramic Repository indicate well over fifty Hopewellian sites in the north that have cord marked pottery. What ones do not have? This is also true of most of the Marksville sites in the south. By refusing to recognize any cultural manifestation as Woodland except the protohistoric and immediately prehistoric Lake Michigan and related groups, Setzler has eliminated any possibility, in his own mind, that the dominant pottery complex of northern Hopewell could be Woodland, but permits the logical suggestion that part of the Lake Michigan pottery complex is a descendant of the cord marked pottery of the Hopewell culture.

Some opinions are apparently contradictory. For example, "as there seems to have been little connection in the northern Mississippi Valley between the Hopewellian phase and any of the other prehistoric complexes, we cannot place the former in any developmental sequence" and "the closest relative of the Hopewellian *phase* is probably the Adena *phase* but whether the Adena represents an early or a late development *within* the Hopewellian is still undetermined."

Setzler seems to consider Algonquian and Woodland identical, and he apparently cannot conceive of Algonquian people having had anything to do with the Hopewell culture. Hence, Hopewell has nothing to do with Woodland.

The text "age" for Hopewellian is some five hundred years earlier than the chart.

The last two or three hundred years of the estimates are probably sufficient to account for Hopewell. Some other explanation than migration will probably account for the disappearance of the Hopewell culture in the north. The same physical type continues on into the historic horizon in the area.

There are no Adena sites in Illinois and Adena material was reported from Kentucky before 1900. A paper by the reviewer now in press points out some salient characters of Adena pottery and its presence in Adena sites. Actually, the relationship between Adena and Hopewell is very close, as Greenman has already indicated. The suspicion is strong that the large Adena mounds in central Kentucky were contemporary with the Hopewell sites of southern Ohio, and my own view is that Ohio Adena is earlier than Hopewell. Whatever the exact chronological relationship, Adena is a division within any reasonably broad concept of Hopewellian.

The treatment of the Middle Mississippi phase is adequate as far as it goes. The Angel site and Kincaid have their closest ties with the Tennessee-Cumberland Mississippi cultures rather than with the Monks Mound aspect. Monks Mound aspect at Cahokia can be divided into an Old Village focus which is closely connected with Aztalan and is older than the Trappist focus which is very close to the Spoon River focus of central Illinois.

The distribution of the Upper Mississippi phase in the text does not conform to that on the map. There is not now available any evidence for a southwestward extension of Fort Ancient beyond the tip of southeastern Indiana. The Fort Ancient Baum site is located north of the Hopewellian earthworks known by the same name. In a number of papers now in press I have attempted to review the evidence associating Fort Ancient with historic groups. Swanton's Siouan hypothesis is not historically sound. The occupants of the middle Ohio Valley between 1500 and 1680 cannot be historically documented. The best guess is the Shawnee.

Blue Island, Big Stone Lake, and Plum Island are not recognized as members of "the Wisconsin aspect," and there is no Middle Mississippi at Blue Island. Grand River can hardly be called "the most important site" of the Oneota Aspect. Setzler implies that the reason Oneota and Fort Ancient have similar archaeological materials and are classed as Upper Mississippi is that both are protohistoric Siouan. He does not also include the Dakota Sioux who have been identified as Woodland for years, nor the Piedmont Siouan tribes who certainly belong in the Woodland pattern. Oneota is actually closer in some respects to Middle Mississippi than it is to Fort Ancient.

There can be little doubt but that most of the Woodland material of the immediately prehistoric period in the northeastern Mississippi and Ohio valleys is Algonquian, but it has not been demonstrated that all of the Algonquian tribes in that area had a Woodland archaeological culture. The use of the word "identical" in referring to Lake Michigan and Middle Atlantic Province pottery is certainly too strong. The Woodland Map is restricted to conform to Setzler's limits of the Lake Michigan phase. The evidence for Lake Michigan in northern Indiana and Ohio is difficult to find.

The length of this review is intended as a compliment to the paper. Setzler's task was a difficult one and his summary contains considerable material and has provided a number of interesting concepts. A lesser paper would not have warranted a detailed commentary.

Culture Sequence in the Central Great Plains, WALDO R. WEDEL, pp. 291–352. This is an excellent summary by the outstanding authority on the prehistory of the central plains area. It is clear, concise and at the same time comprehensive. Following the discussions of the physiography and of the possibility of early man in the region, Wedel discusses, in chronological order, the archaeological cultures now recognized. Two charts implement the presentation of the cultural units.

The extent and importance of Plains Woodland cultures and their early position at

the majority of sites is indicated. The relationship of the Hopewellian sites to Woodland in the Plains area and to Hopewellian in the Mississippi Valley are adequately discussed. The rather closely related and at least partially contemporaneous Upper Republican and Nebraska divisions are characterized and their interconnections emphasized. The impact of Middle and Upper Mississippi ideas upon the Missouri Valley groups is analyzed, and the origin of Plains house types is stated to still be obscure.

In a rapid survey of the early historic literature of the area, Wedel describes the factors influencing protohistoric cultural changes. The probable protohistoric cultures of the Wichita (Paint Creek), and the Pawnee (Lower Loup focus), the Oneota, and the historic Pawnee are all briefly sketched. In the summary, an historical interpretation of the archaeological data is given, lacunae are mentioned, and problems are suggested for future work.

Wedel apparently regards all archaeological cultural groups later than the early hunters as forerunners of the covered wagon era, for each is considered as having migrated into the area from the Mississippi Valley. While such movements are known historically and traditionally, and some are almost certainly true on the basis of archaeological evidence, the Woodland, Upper Republican and Nebraska cultures might also be regarded as the products of relatively indigenous peoples who participated in the general cultural growth throughout the eastern United States. The earliest recognizable Middle Mississippi influences in the central Missouri Valley are probably found in the Mill Creek culture of the Big Sioux area and this can be ascribed to the early period of the Monks Mound aspect as represented by the Aztalan and Old Village foci type material. There is reason to believe that this thrust was westward from Aztalan rather than up the river from Cahokia. If this is actually a movement of people the cultural content was already modified by the time the Missouri Valley was reached. Later Middle Mississippi migrations, moving up the Missouri, are represented by such a site as Steed-Kisker, which is closely connected to the Trappist focus or the late level at Cahokia. This intrusion did not penetrate farther north than the Nebraska culture, and was the modifying influence which provided a Mississippi cast to the eastern representatives of the Plains cultures. It will be interesting to see the material Wedel considers as Lower Mississippi.

As Wedel has clearly indicated, the Oneota culture, perhaps along with early European contact, brought about interesting and significant cultural shifts in the Plains area. I do not share his hesitation in identifying western Oneota as only Iowa, Oto or Missouri. It is true that pottery, particularly from central Illinois and southeastern Missouri indicates strong Oneota concepts but the correct interpretation of this material is not yet clear. There has been no adequate reason set forward as yet why any Oneota complex in the Plains should be assigned to any tribal division other than those enumerated above. The Lynch site, for which such bizarre claims were originally made, is probably nearer the close than the beginning of the time period suggested by Wedel.

It might be pointed out that Wedel has successfully employed the two primary tools of cultural interpretation: arrangement of cultural entities into meaningful groups of varying degrees of relationship based on likeness and dissimilarity; and arrangement of cultural groups into apparent chronological order. The interpretation of the cultural history of the area was then made much more satisfactorily than if either primary approach was used to the exclusion of the other.

From History to Prehistory in the Northern Great Plains, WM. DUNCAN STRONG, pp 353–394. As Strong points out, this chapter is suggestive rather than definitive. It does present a usable summary of some of the recent finds in the Dakotas and serves to

emphasize the little touched reservoirs of aboriginal material which need to be interpreted before a cultural history of the northern Plains can be written. Any number of valuable leads and hypotheses are suggested for future research and should serve as stimuli to the active field and laboratory workers in the northern Plains.

The brief characterization of the Fort Abraham Lincoln (Mandan) site, and its close connection with the Burgois site, indicate that in this case two nearly contemporaneous sites of ethnically closely related peoples can be included in a focus. From the evidence presented by Strong, which is admittedly weak, the Hidatsa would seem to represent another focus at approximately the 1800 period. The description of Arikara artifacts of the same date indicates a somewhat divergent complex but still close enough to the Mandan to be included in a cultural grouping equivalent to an aspect. The description of Cheyenne archaeology of the 1770 period presents a culture, part Woodland and part Plains, with the strongest ties to any grouping which would include the contemporary and contiguous Siouan and Caddoan peoples in the Upper Missouri Valley mentioned above.

On the proto-historic and late prehistoric level are the Rygh site, which Strong regards as downriver Mandan, and the Arzberger site, which he believes is transitional between Upper Republican and the Lower Loup focus in Nebraska and Arikara in the north. The hypothesis that the Glendive, Montana, site is Crow probably will be demonstrated. In the reviewer's opinion it is closer to Mandan than to Hidatsa. Ludlow Cave, Mill Creek, and the Dakota mounds are briefly mentioned. There is a short discussion of the question of early man. The interpretation of the cultural position of Minnesota Man and the Arvilla focus is timely and a welcome antidote.

The association of Cheyenne to Black Duck focus material hardly seems likely at present although there is a definite suggestion of Woodland concepts in the use of the single cord impressed decoration. This is, I believe, the main point that Strong wished to make. The culture complex from some of the mounds in southeastern South Dakota is Woodland and is not directly comparable to that described from North Dakota by Montgomery.

The interpretation of the Arzberger site will be interesting to check following future excavation and interpretation. The connection with the St. Helena focus, a late Upper Republican-Nebraska mixture is certainly sound, and we find Oneota influence at work in both groups as has been pointed out. That from such a mixture the Lower Loup focus developed appears reasonable but the development into Arikara is less clear.

JAMES B. GRIFFIN
University of Michigan

Some Navaho Culture Changes during Two Centuries, W. W. HILL, pp. 395–415. Doubtless, no people have been so subjected to scientific scrutiny as have the Navaho in recent years. Of all of the ethnologists who have stepped on each other's toes on the Navaho Reservation, certainly none are more qualified to treat of the culture than W. W. Hill. Dr. Hill's residence on the Reservation and his subsequent studies with this background have given him a decided edge which most of the purely academic fraternity do not have.

This paper, although labeled "Navaho Cultural Changes," may be more properly called, perhaps, an addition to a long series of such under the name of Hill which treat of many material, and some fewer social and ceremonial, aspects of Navaho life. This contribution is especially valuable as it fills an important historic gap between the first Zarate-Salmeron and Benavides manuscripts of the early seventeenth century until the comparatively complete descriptions around the last of the eighteenth century. The pres-

ent paper is based on a report to the Viceroy of New Spain dated on October 3, 1744, the original manuscript being furnished from the Pinart Collection of the Bancroft Library, University of California at Berkeley. As such, it is a valuable addition to material in the usual sources and supplements, especially that in Charles Amsden's, *Navaho Weaving*.

The period under discussion in this work was one of unusual military activity and of comparative economic prosperity for the Navaho. The material is presented in a series of dispositions given under oath by twelve witnesses, each account being rather short but pregnant with ethnological data and with enough geographical remarks to well substantiate the ethnogeography. Although, as is usual in such archaic documents, translations and interpretations of some of the individual points are in doubt, the author has gone to no small lengths to get even the most obscure data correct. Most of the information is in the form of forays or downright military expeditions into the Navaho country in which various of the witnesses took part. The tenor of the information is that the Navaho live on the tops of the mesas in little houses of stone and are warred upon by the Utes and the Comanches. Notwithstanding, however, these same Indians raised native produce as well as introduced species (watermelon) and have considerable flocks of sheep and goats, but few cattle. Inasmuch as Navaho enmity had been diverted from the Spaniards to the more present enemies, the Utes and Comanches, trade between the Navaho and the settlements flourished. In the enumeration of these trade items, especially, are the ethnological expectations fulfilled.

The publication and annotation of this interesting manuscript provides another valuable source for Navaho studies.

Progress in the Southwest, NEIL M. JUDD, pp. 417–444. This article may be classed as a summary and evaluation of recent developments in Southwestern anthropology, and is quite in keeping with the rest of the important articles in the Swanton volume. The data involving, for the most part, considerations for the last two decades, is treated according to divisions of the science with discussion developing along geographical lines.

Mr. Judd first discusses the Pueblo country after an introduction of an historical nature. Under the Pueblo country he surveys the rise of dendrochronology as well as the startling advance of ethnobiology. Under the latter, he outlines fully the fascinating new advances in the comparatively recent science of ethnobotany. As is usual in such considerations, archaeology still receives the bulk of the attention under the heading, *New Data on the Anasazi*. Notable developments on the rapidly pyramiding archaeological knowledge of the "Old Enemy" section of the Southwest are herein treated according to general developments, i.e. the core of the area, subsequently the northern periphery, and finally the eastern periphery. It is especially pointed out that it is in these enormously important peripheral areas that substantial progress has been made.

A new note, at least in print, is sounded when the developments in terminology of the Anasazi province are surveyed. The author voices an opinion which has been buzzing on the archaeological undercurrents for the last several years, in stating that several scientists have added to, rather than lessened, the taxonomic confusion, especially as regards ceramics. Mr. Judd decries the increase in new pottery types, especially from the area of central and northern Arizona, based upon too little evidence. He again voices the opinion that Pueblo potters are individualists.

The second major portion of the paper deals with the Desert Province, in which, of course, the Hohokam is conspicuous. Appropriate recognition is given to *Excavations at Snaketown*. The author, however, in keeping with the opinions of many in the Southwest, regards the much-discussed Mogollon culture to be an illegitimate whose paternity is still under scrutiny.

The discussion closes appropriately with a section on desert areas inviting study,

areas especially to the west and to the south in Old Mexico. The enlightening and informative summary contains not only a resumé, but considerable contribution from Mr. Judd's own knowledge as well. He voices a wish for more comprehensive work, rather than multitudinous publications on minutiae, a wish which is the very essence of anthropological progress in the Southwest. The most regrettable item in this most interesting exposition is the statement by Mr. Judd that he has not yet finished his work preparatory to the publication of the archaeologically all-important Pueblo Bonito. The reader, however, receives indirectly the benefit of Judd's Chaco experiences as well as his other Southwestern studies, in the apt and lucid comments on recent progress in the Southwest.

Native Cultures of the Intermontane (Great Basin) Area, JULIAN H. STEWARD, pp. 445–502. This paper is a major contribution of new or unpublished data on the Intermontane Area, as well as a summary of other widely scattered material on small portions of the problem. None would be better fitted for this exposition than Dr. Steward, who has long been identified with and considered the authority upon this area. The authoritative treatment of the author is first revealed in the introduction in which he outlines the archaeological and tribal divisions of the area accompanied by a lucid map. The cultural position of the Intermontane Area is described as distinctiveness in simplicity with "diverse borrowing from different sources at different periods, and of a certain measure of internal development." This puts the matter very nicely if these various sources and inter-relations can be segregated.

Dr. Steward lays an archaeological background from the very beginning, starting with Yuma and Folsom problems ("Yuman" is possible of confusion with the Colorado sector with totally different connections so that "Yuma" is probably better.) Some of Dr. Roberts' theories as to a possible branch migration of the Paleo-Indian swinging west into the Intermontane Area are interesting in this regard. Pre-Basketmaker cultures are involved in this discussion and search for these has proved especially pertinent in the Intermontane Area, initiated by Harrington's Gypsum Cave. Dr. Steward elucidates his findings in regard to these early complexes in a figure as well as with ample description. Of especial note is his placing of the Lovelock Cave in comparatively late associations derived from, rather than earlier than, Basketmaker.

Anasazi cultures have constantly provided a means for subdividing the Intermontane Area both chronologically and geographically as these data have been so comparatively well worked out for the south. Dr. Steward carries on this tradition in dividing his area into divisions such as Western Periphery, Northern Periphery, Western Nevada, Southeastern Oregon, and the like. Evidences of Pueblo influence are remarkably slight, especially in the northern portion of the Intermontane Area. Sufficient occurs, however, to conveniently correlate non-Pueblo or un-Pueblo manifestations. The famous Promontory people coming in from the north form one of the most important interludes which have been correlated with Pueblo strata. The account here given is good on this subject.

The second half of the paper may be termed ethnographic and ethnologic data. Dr. Steward here attempts a characterization of the three divisions of the Uto-Aztecan linguistic stock collectively known as the Shoshoneans, a most difficult procedure because of the extreme dispersion of the ethnic groups and their lack of adherence to any focal complex of traits other than those dictated by the environment. On this broad basis, the Intermontane Area is divided into two sub-divisions, a western one based on seed gathering, and an eastern one on bison hunting. This cleavage unfortunately creates a schism in the information as well as the results. The author then presents lucid accounts of groups and sub-groups as to dwellings, clothing, hunting, gathering, ornamentation, property, death, warfare, shamanism, games, crisis rites, etc. etc., data gathered from many sources, much of it from field work of Dr. Steward himself.

In a discussion and a summing up of this complex evidence, the old question of an archaic underlying culture and its survival in various places is again brought to the fore. The discussion in this regard is lively and many plausible explanations are proffered, of which parallelism and the recent spread of traits from Asia are only two. Whether the question of an underlying archaic sub-stratum is furthered or negated, the material presented herein may be regarded as an important collection and source for information on the Intermontane or Great Basin Area for all times.

FRANK C. HIBBEN
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Southern Peripheral Athapaskawan Origins, Divisions, and Migrations, J. P. HARRINGTON, pp. 503–533. The questions asked by Harrington are more ambitious than our rather meager collections of data and still thinner analyses permit. The result is inevitably inconclusive, or an expression of unsupported personal opinion. Examples of the latter are the views that Eskimo-Aleutian is related to Algonquian, and that there is linguistic evidence for the common origin of all American Indian languages.

CARL VOEGELIN
University of Indiana

Outline of Eskimo Prehistory, HENRY B. COLLINS, JR., pp. 533–592. In this paper Collins presents a synoptic review of the cultural position of the Eskimos in which he emphasizes the marked effect of environmental factors upon their mode of life, their somewhat unique position in relation to neighboring peoples, and the homogeneity of culture, language and physical type throughout the Eskimo region. Also included are brief comments upon the numerous and conflicting theories proposed during the last century concerning the origin and development of Eskimo culture. Collins' chief concern, however, is with the prehistoric Eskimo cultures discovered during the past twenty years, and with a brief description of each he attempts to demonstrate its approximate age and position in time and space. This is graphically presented in a chart (p. 545) which will be very useful to those interested in a coordinated summary of Eskimo prehistory.

There are several conclusions expressed by Collins which, I believe, will be of great interest to the general reader. One, with which I whole-heartedly agree, is that the demonstrably old and highly complex culture of the Alaska Eskimos must now be regarded as older than, and ancestral to, the Central Eskimo culture, a conclusion which tends to refute the formerly generally accepted theory that Eskimo culture originated in central Canada. Other very interesting but more debatable conclusions are "that there are strong indications of cultural contacts between the Northwest Coast, south Alaska, and eastern Asia via the Aleutian Islands," and that the uniformity of culture along the American Arctic coast is due to a "return migration" of Thule Eskimos from the east in relatively recent times.

I must confess that I have some difficulty in following a few of the arguments in this paper. This is no criticism of their presentation but is due, I believe, rather to the confusion into which studies of Eskimo prehistory have fallen. This confusion, in turn, probably results from the fact that complex theories of origin and development have been presented without recognizing the inadequacy of knowledge concerning both historic and prehistoric cultures in Alaska. If there is any criticism of Collins' attempt to create order out of confusion it is that he does not sufficiently emphasize this lack of knowledge and the very great task which still lies ahead of the ethnologist and the archaeologist in Alaska before what is now conflicting evidence can be explained.

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FACTS AND COMMENTS

What Are the Burnt Rock Mounds of Texas? J. CHARLES KELLEY and T. N. CAMPBELL 319
Stone Mortars of Contra Costa County, California. ERNEST N. JOHNSON . . . 322
On "An Interpretation of the Prehistory of the Eastern United States." A. L. KROEBER 326

BOOK REVIEWS

Essays in Historical Anthropology of North America
STEWART: "Some Historical Implications of Physical Anthropology" (Neumann) . . . 327
ROBERTS: "Developments in the Problem of the North American Paleo-Indian" (Hibben) . . . 327
STIRLING: "The Historic Method as Applied to Southeastern Archaeology" (Griffin) . . . 328
BUSHNELL: "Virginia before Jamestown" (Griffin) . . . 328
FENTON: "Problems Arising from the Historic Northeastern Position of the Iroquois" (Kinietz) . . . 329
SETZLER: "Archaeological Perspectives in the Northern Mississippi Valley" (Griffin) . . . 329
WEDEL: "Culture Sequence in the Central Great Plains" (Griffin) . . . 331
STRONG: "From History to Prehistory in the Northern Great Plains" (Griffin) 332
HILL: "Some Navaho Culture Changes during Two Centuries" (Hibben) . . 333
JUDD: "Progress in the Southwest" (Hibben) . . . 334
STEWARD: "Native Cultures of the Intermontane (Great Basin) Area" (Hibben) . . . 335
HARRINGTON: "Southern Peripheral Athapaskawan Origins, Divisions, and Migrations" (Voegelin) . . . 336
COLLINS: "Outline of Eskimo Prehistory" (Rainey) . . . 336

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